

=> file reg

FILE 'REGISTRY' ENTERED AT 14:27:29 ON 29 APR 2003
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STRUCTURE FILE UPDATES: 27 APR 2003 HIGHEST RN 506405-59-0
DICTIONARY FILE UPDATES: 27 APR 2003 HIGHEST RN 506405-59-0

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2003

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

=> d his

(FILE 'HOME' ENTERED AT 11:25:42 ON 29 APR 2003)
DELETE YAMN/L

L1 FILE 'LREGISTRY' ENTERED AT 11:26:04 ON 29 APR 2003
STR

L2 FILE 'REGISTRY' ENTERED AT 11:30:56 ON 29 APR 2003
50 S L1

L3 FILE 'LREGISTRY' ENTERED AT 11:32:19 ON 29 APR 2003
SCR 1993

L4 FILE 'REGISTRY' ENTERED AT 11:36:24 ON 29 APR 2003
50 S L1 AND L3

FILE 'LREGISTRY' ENTERED AT 11:38:56 ON 29 APR 2003

FILE 'REGISTRY' ENTERED AT 11:41:01 ON 29 APR 2003

L7 FILE 'LREGISTRY' ENTERED AT 11:42:09 ON 29 APR 2003
STR

L8 FILE 'REGISTRY' ENTERED AT 12:57:03 ON 29 APR 2003
14712 S L1 FULL
SAVE L8 HARLAN028/A

L9 2200 S L8 AND 2/N AND 1/M

L10 FILE 'HCA' ENTERED AT 12:58:51 ON 29 APR 2003
1605 S L9

FILE 'REGISTRY' ENTERED AT 12:59:09 ON 29 APR 2003

FILE 'LREGISTRY' ENTERED AT 13:00:39 ON 29 APR 2003

R. Harlan

10/087,025

04/29/2003

FILE 'REGISTRY' ENTERED AT 13:01:52 ON 29 APR 2003
L11 589 S L9 AND 0/O
L12 225 S L11 AND 1-2/X

FILE 'LREGISTRY' ENTERED AT 13:03:05 ON 29 APR 2003

FILE 'REGISTRY' ENTERED AT 13:05:11 ON 29 APR 2003
L13 303 S L11 AND 1/NC
L14 128 S L12 AND 1/NC

FILE 'HCA' ENTERED AT 13:08:29 ON 29 APR 2003
L15 218 S L13
L16 106 S L14

FILE 'REGISTRY' ENTERED AT 13:09:27 ON 29 APR 2003
L17 1 S L7 SSS SAM SUB=L8

FILE 'LREGISTRY' ENTERED AT 13:10:41 ON 29 APR 2003

FILE 'REGISTRY' ENTERED AT 13:19:45 ON 29 APR 2003
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L19 37 S L7 SSS FULL SUB=L8
SAVE L19 HARL028A/A

L20 5 S L19 AND 2/N

FILE 'HCA' ENTERED AT 13:23:15 ON 29 APR 2003
L21 6 S L20
L22 381 S L11
L23 166 S L12

FILE 'LREGISTRY' ENTERED AT 13:30:27 ON 29 APR 2003
L24 STR L1

FILE 'REGISTRY' ENTERED AT 13:34:22 ON 29 APR 2003
L25 50 S L24 SSS SAM SUB=L8
L26 4289 S L24 SSS FULL SUB=L8
SAVE L26 HARL028B/A

L27 1155 S L26 AND 1/M AND 2/N
L28 331 S L27 AND 0/O
L29 26 S L28 AND 2/NR

FILE 'HCA' ENTERED AT 13:40:14 ON 29 APR 2003
L30 21 S L29

FILE 'REGISTRY' ENTERED AT 13:40:23 ON 29 APR 2003
L31 20 S L29 AND 1-2/X

FILE 'HCA' ENTERED AT 13:40:42 ON 29 APR 2003
L32 20 S L31

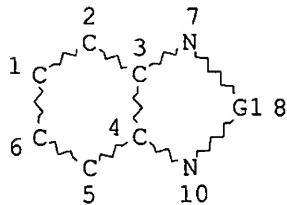
FILE 'LCA' ENTERED AT 14:00:37 ON 29 APR 2003
L33 200 S (ETHYLEN## OR PROPYLENE## OR BUTYLEN## OR BUTEN## OR ISOBUTEN
L34 1398 S POLYOLEFIN? OR POLYETHYLENE# OR PE OR POLYPROPYLENE# OR PROPR
L35 256 S POLY(W) (ETHYLENE# OR ETHENE# OR PROPYLENE# OR PROPENE# OR BUT
L36 4358 S POLYMERIZ? OR POLYMERIS? OR POLYM# OR CURE# OR CURING# OR DIG

FILE 'HCA' ENTERED AT 14:09:52 ON 29 APR 2003
L37 505399 S L34 OR L35

L38 1497772 S L36
 L39 31 S L10 AND (L34 OR L35)
 L40 19 S L39 AND L36
 L41 13 S L40 AND OLEFIN?

FILE 'HCA' ENTERED AT 14:21:49 ON 29 APR 2003
 L42 20 S L28 AND (L33 OR L34 OR OLEFIN###)
 L43 16 S L42 AND L36
 L44 1 S L30 NOT L32
 L45 15 S L42 AND 1950-2001/PY
 L46 0 S L45 NOT L42
 L47 5 S L42 NOT L45
 L48 15 S L43 NOT (L30 OR L21)

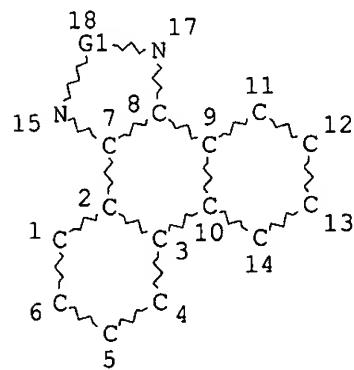
=> d que stat L19
 L1 STR



VAR G1=NI/FE/CO
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 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 9

STEREO ATTRIBUTES: NONE
 L7 STR



VAR G1=FE/NI/CO
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

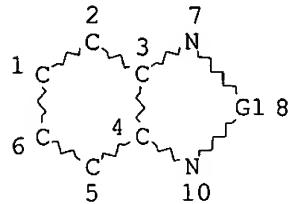
GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 17

STEREO ATTRIBUTES: NONE
 L8 14712 SEA FILE=REGISTRY SSS FUL L1
 L19 37 SEA FILE=REGISTRY SUB=L8 SSS FUL L7

100.0% PROCESSED 5467 ITERATIONS
 SEARCH TIME: 00.00.01

37 ANSWERS

=> d que stat L26
 L1 STR

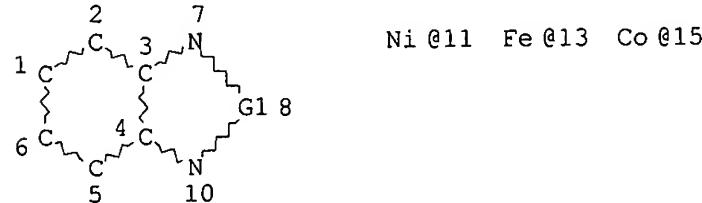


I didn't specify groups attached to node 2, 1, 6, 5 or 6, because the attachment could be hydrogen.

VAR G1=NI/FE/CO
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 9

STEREO ATTRIBUTES: NONE
 L8 14712 SEA FILE=REGISTRY SSS FUL L1
 L24 STR



VAR G1=11/13/15
 NODE ATTRIBUTES:
 CONNECT IS X4 RC AT 11
 CONNECT IS X4 RC AT 13
 CONNECT IS X4 RC AT 15
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 12

STEREO ATTRIBUTES: NONE
 L26 4289 SEA FILE=REGISTRY SUB=L8 SSS FUL L24

100.0% PROCESSED 14712 ITERATIONS
 SEARCH TIME: 00.00.01

4289 ANSWERS

=> file hca

FILE 'HCA' ENTERED AT 14:27:50 ON 29 APR 2003
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FILE COVERS 1907 - 24 Apr 2003 VOL 138 ISS 18
FILE LAST UPDATED: 24 Apr 2003 (20030424/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

The records and hits that I obtained in Registry file did NOT have the =N (double bonded nitrogen). When I tried to specify the bonding to the nitrogen, I didn't obtain any hits.

These first 15 records have a publication date of 2001 or before.

The next or following 5 records have publication dates after 2001.

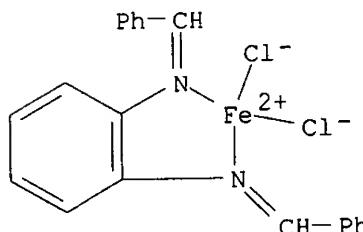
=> d L45 1-15 cbib abs hitind hitstr

L45 ANSWER 1 OF 15 HCA COPYRIGHT 2003 ACS
136:135086 Influence of the P, O-bidentate ligand on ethylene oligomerization catalyzed by iron complexes. Wang, Mei; Yu, Xiao-Min; Qian, Ming-Xing; He, Ren (State Key Laboratory of Fine Chemicals, Dalian University of Technology, Dalian, 116012, Peop. Rep. China). Chemical Research in Chinese Universities, 17(2), 228-232 (English) 2001. CODEN: CRCUED. ISSN: 1005-9040. Publisher: Higher Education Press.

AB The effect of the phosphorus-oxygen chelate on the catalytic activity and selectivity of the diimine iron catalyst in ethylene oligomerization was evaluated. The iron complexes catalysts, $FeCl_2PhCH=NC_6H_4O-N=CHPh$ and $FeCl_2PhCH=NCH_2CH_2N=CHPh$ in combination with ethylaluminoxane (EAO) as cocatalyst, were used for the study. Precursors were prepd. in situ by the refluxing diimine iron complex 1 and 2, with 1 mol Ph_2PCH_2COONa in toluene for 1 h and a certain amt. of EAO was added after cooling of the soln. at room temp. Both catalyst 1 and 2 with EAO showed moderate activity for ethylene oligomerization with high selectivities for C4-C10 olefins. However, the addn. of the phosphorus-oxygen chelate ligand had no significant effect on the catalytic activities of the two catalysts, but did affect the selectivities for low-carbon olefins

and linear .alpha.-olefins in ethylene oligomerization. The ortho-position hindrance of the ligands was not the predominant factor that control the selectivity for forming the linear products in the ethylene polymn. and oligomerization.

CC 35-4 (Chemistry of Synthetic High Polymers)
 IT 97-93-8, Triethylaluminum, uses 314084-21-4 314084-22-5
 RL: CAT (Catalyst use); USES (Uses)
 (effect of P, O-bidentate ligand on ethylene oligomerization catalyzed by iron complexes)
 IT 314084-21-4
 RL: CAT (Catalyst use); USES (Uses)
 (effect of P, O-bidentate ligand on ethylene oligomerization catalyzed by iron complexes)
 RN 314084-21-4 HCA
 CN Iron, [N,N'-bis(phenylmethylene)-1,2-benzenediamine-.kappa.N,.kappa.N']dichloro- (9CI) (CA INDEX NAME)



L45 ANSWER 2 OF 15 HCA COPYRIGHT 2003 ACS

135:318760 Ethylene oligomerization promoted by nickel complexes with 8-iminoquinoline derivatives. Li, Zi Long; Sun, Wen Hua; Ma, Zhi; Hu, You Liang; Shao, Chang Xing (State Key Laboratory of Engineering Plastics and The Center for Molecular Sciences, Institute of Chemistry, The Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China). Chinese Chemical Letters, 12(8), 691-692 (English) 2001. CODEN: CCLEE7. ISSN: 1001-8417. Publisher: Chinese Chemical Society.

AB A series of 8-iminoquinoline deriv. - nickel complexes were synthesized by condensation of ketones and primary amines. The complexes showed high activity when used as catalysts in ethylene oligomerization. The oligomerization products are olefins with 90-99% of C8 and C10 chains, and .alpha.-olefin yields of less than 40%.

CC 35-3 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 67, 78

ST nickel iminoquinoline deriv complex prepn catalyst activity; ethylene oligomerization nickel iminoquinoline deriv complex catalyst; alfa olefin yield ethylene oligomerization nickel iminoquinoline catalyst

IT 9002-88-4P, Polyethylene
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (oligomeric; prepn. and catalytic activity of nickel-iminoquinoline deriv. catalysts in ethylene oligomerization)

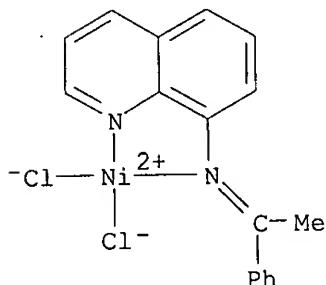
IT 368890-64-6P 368890-65-7P 368890-66-8P
 368890-67-9P 368890-68-0P 368890-69-1P
 RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
 (prepn. and catalytic activity of nickel-iminoquinoline deriv. catalysts in ethylene oligomerization)

IT 368890-64-6P 368890-65-7P 368890-66-8P
 368890-67-9P 368890-68-0P 368890-69-1P
 RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP

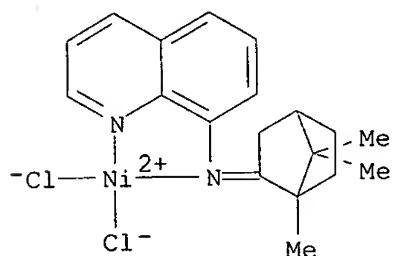
(Preparation); USES (Uses)

(prep. and catalytic activity of nickel-iminoquinoline deriv.
catalysts in ethylene oligomerization)

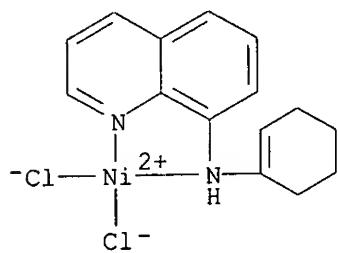
RN 368890-64-6 HCA

CN Nickel, dichloro[N-(1-phenylethylidene)-8-quinolinamine-
.kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)

RN 368890-65-7 HCA

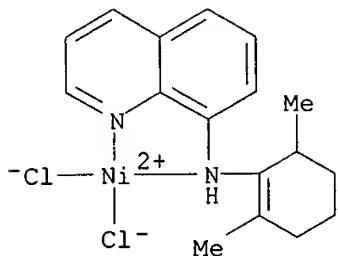
CN Nickel, dichloro[N-(1,7,7-trimethylbicyclo[2.2.1]hept-2-ylidene)-8-
quinolinamine-.kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)

RN 368890-66-8 HCA

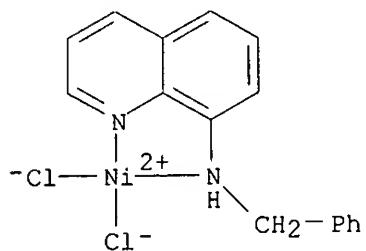
CN Nickel, dichloro(N-1-cyclohexen-1-yl-8-quinolinamine-.kappa.N1,.kappa.N8)-
(9CI) (CA INDEX NAME)

RN 368890-67-9 HCA

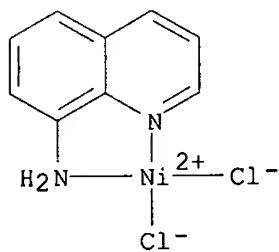
CN Nickel, dichloro[N-(2,6-dimethyl-1-cyclohexen-1-yl)-8-quinolinamine-
.kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)



RN 368890-68-0 HCA
 CN Nickel, dichloro[N-(phenylmethyl)-8-quinolinamine-.kappa.N1,.kappa.N8]-(9CI) (CA INDEX NAME)



RN 368890-69-1 HCA
 CN Nickel, dichloro(8-quinolinamine-.kappa.N1,.kappa.N8) - (9CI) (CA INDEX NAME)



L45 ANSWER 3 OF 15 HCA COPYRIGHT 2003 ACS
 134:367234 Ethylene oligomerization by cobalt(II) diimine complexes/EAO.
 Qian, M.; Wang, M.; Zhou, B.; He, R. (Open Laboratory of Comprehensive Utilization for Carbon Resources, Dalian University of Technology, Dalian, 116012, Peop. Rep. China). Applied Catalysis, A: General, 209(1,2), 11-15 (English) 2001. CODEN: ACAGE4. ISSN: 0926-860X. Publisher: Elsevier Science B.V..

AB The catalytic properties of a series of Co(II) diimine complexes Co(N and N)Cl₂ [A: N and N = N,N'-o-phenylenebisbenzal; B: N and N = N,N'-ethylenebisbenzal; C: N and N = N,N'-o-phenylenebis(diphenylmethylen)] in combination with ethylaluminoxane (EAO) as cocatalyst for ethylene oligomerization were investigated. Treatment of the cobalt diimine complexes with EAO in toluene generated active catalysts *in situ* that are capable of oligomerizing ethylene to low-carbon olefins. The catalytic activity and product distribution were affected by reaction conditions, such as reaction temp., the ratios of Al/Co and the reaction time. The activity of 1.30.times.105 g oligomers/mol Co.cntdot.h

for the catalytic system of CoCl_2 ($\text{Ph}_2\text{C}:\text{o-NC}_6\text{H}_4\text{N:CPH}_2$) with EAO at 200.degree. was obsd., with the selectivity of 94.4% to C4-10 olefins and 87.2% to C4-10 linear .alpha.-olefins.

CC 35-3 (Chemistry of Synthetic High Polymers)

IT 334979-48-5 340187-24-8 340187-25-9

RL: CAT (Catalyst use); USES (Uses)
(ethylene oligomerization by cobalt(II) diimine complexes/ethylaluminoxanes)

IT 9002-88-4P, Polyethylene

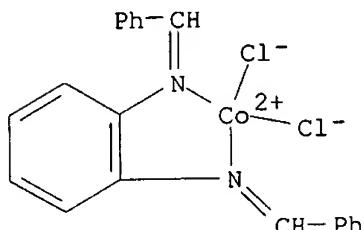
RL: SPN (Synthetic preparation); PREP (Preparation)
(ethylene oligomerization by cobalt(II) diimine complexes/ethylaluminoxanes)

IT 334979-48-5 340187-25-9

RL: CAT (Catalyst use); USES (Uses)
(ethylene oligomerization by cobalt(II) diimine complexes/ethylaluminoxanes)

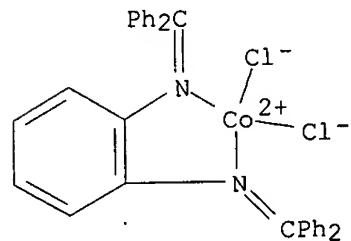
RN 334979-48-5 HCA

CN Cobalt, [N,N'-bis(phenylmethylene)-1,2-benzenediamine-.kappa.N,.kappa.N']dichloro-, (T-4)- (9CI) (CA INDEX NAME)



RN 340187-25-9 HCA

CN Cobalt, [N,N'-bis(diphenylmethylene)-1,2-benzenediamine-.kappa.N,.kappa.N']dichloro- (9CI) (CA INDEX NAME)



L45 ANSWER 4 OF 15 HCA COPYRIGHT 2003 ACS

134:178877 Four-coordinated bipyridine complexes of nickel for ethene polymerization - the role of ligand structure. Kinnunen, T.-J. J.; Haukka, M.; Pakkanen, T. T.; Pakkanen, T. A. (PO Box 111, Department of Chemistry, University of Joensuu, Joensuu, FIN-80101, Finland). Journal of Organometallic Chemistry, 613(2), 257-262 (English) 2000. CODEN: JORCAI. ISSN: 0022-328X. Publisher: Elsevier Science S.A..

AB Four-coordinated bipyridine complexes of nickel, (2,2'-bipyridine)nickel dibromide, [6,6'-bis(methoxycarbonyl)-2,2'-bipyridine]nickel dibromide (I), (2,2'-biquinoline)nickel dibromide (II), and (2,9-dimethyl-4,7-diphenyl-1,10-phenanthroline)nickel dibromide (III), were synthesized. Single crystal X-ray structures were detd. for compds. I and III. Both structures were monoclinic with space group P21/c. For I, a 8.4289(7), b 13.5013(14), c 14.7341(15) .ANG., Z = 4. For complex III, a 12.8143(4), b

22.5687(8), c 7.8172(2) .ANG., Z = 4. Catalytic activities of the complexes were studied in **ethylene polymn.** using Me aluminoxane as a cocatalyst. Complexes I and II showed a modest activity producing high-d. **Polyethylene**. Polymn. temp. had a clear effect on the activities of the complexes. Reactions carried at 50.degree.C yielded more **Polyethylene** than reactions at 30 or 70.degree.. The effect of ligand structure on catalytic activity was also obsd., the bulky substituents increased activity.

CC 35-3 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 67, 75, 78

ST nickel bipyridine complex prepn structure catalyst **polymn ethylene**; crystal structure nickel bipyridine phenanthroline bromo

IT 9002-88-4P, **Polyethylene**
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (high-d.; catalytic activity of nickel bipyridine complexes for prepn. of)

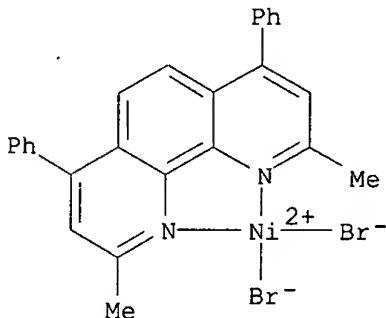
IT 14950-13-1P, (2,2'-Biquinoline)nickel dibromide 46389-47-3P,
 (2,2'-Bipyridine)nickel dibromide
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (prep. and **ethylene-polymg.** catalytic activity of nickel bipyridine complexes)

IT 326822-01-9P, [6,6'-Bis(methoxycarbonyl)-2,2'-bipyridine]nickel dibromide
 326822-02-0P, (2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline)nickel dibromide
 RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (prep., crystal structure and **ethylene-polymg.** catalytic activity of nickel bipyridine complexes)

IT 326822-02-0P, (2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline)nickel dibromide
 RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (prep., crystal structure and **ethylene-polymg.** catalytic activity of nickel bipyridine complexes)

RN 326822-02-0 HCA

CN Nickel, dibromo(2,9-dimethyl-4,7-diphenyl-1,10-phenanthroline-.kappa.N1,.kappa.N10)-, (T-4)- (9CI) (CA INDEX NAME)



There were quite a few records like this. But it is the wrong orientation.

L45 ANSWER 5 OF 15 HCA COPYRIGHT 2003 ACS

134:56410 Ethylene oligomerization by diimine iron(II) complexes/EAO.

Mingxing, Q.; Mei, W.; Ren, H. (Open Laboratory of Comprehensive Utilization for Carbon Resources, Dalian University of Technology, Dalian, 116012, Peop. Rep. China). Journal of Molecular Catalysis A: Chemical, 160(2), 243-247 (English) 2000. CODEN: JMCCF2. ISSN: 1381-1169. Publisher: Elsevier Science B.V..

AB The catalytic properties of a series of Fe(II) diimine complexes (diimine = N,N'-o-phenylenebis(salicylideneaminato), N,N'-ethylenebis(salicylideneaminato), N,N'-o-phenylenebisbenzal, N,N'-ethylenebisbenzal) in combination with ethylaluminoxane (EAO) for ethylene oligomerization have been investigated. Treatment of the iron(II) complexes with EAO in toluene generates active catalytic systems in situ that oligomerize ethylene to low-carbon olefins. The effects of reaction temp., ratios of Al/Fe and reaction periods on catalytic activity and product distribution have been studied. The activity of complex $\text{FeCl}_2(\text{PhCH:}\text{N}-\text{o-C}_6\text{H}_4\text{N:CHPh})$ with EAO at 200.degree.C is 1.35.times.105 g oligomers/mol Fe.cntdot.h, and the selectivity of C4-10 olefins is 84.8%.

CC 23-2 (Aliphatic Compounds)

Section cross-reference(s): 35

IT 14167-12-5, [N,N'-Ethylenebis(salicylideneaminato)]iron 16828-80-1
314084-21-4 314084-22-5

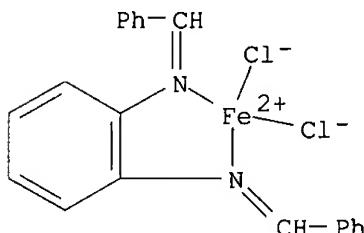
RL: CAT (Catalyst use); USES (Uses)
(ethylene oligomerization by diimine iron complexes/ethyl aluminoxanes)

IT 314084-21-4

RL: CAT (Catalyst use); USES (Uses)
(ethylene oligomerization by diimine iron complexes/ethyl aluminoxanes)

RN 314084-21-4 HCA

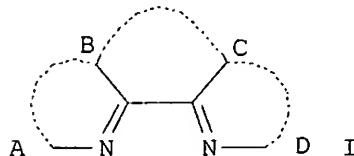
CN Iron, [N,N'-bis(phenylmethylene)-1,2-benzenediamine-.kappa.N,.kappa.N']dichloro- (9CI) (CA INDEX NAME)



L45 ANSWER 6 OF 15 HCA COPYRIGHT 2003 ACS

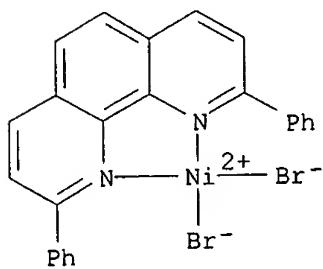
134:29799 Polymerization catalysts and highly stereospecific polyolefins manufactured therewith. Tanaka, Hiromitsu; Kin, Yao; Nakano, Mitsuru; Usuki, Arimitsu (Toyota Central Research and Development Laboratories, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2000344815 A2 20001212, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-154050 19990601.

GI



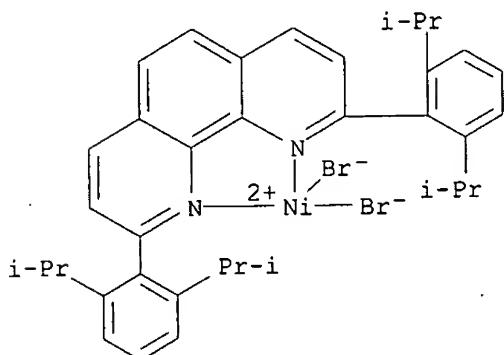
AB The catalysts contain metal atoms and ligands I having planar structure and .gtoreq.1 ring structure formed by linking positions at A and B, B and C, and/or C and D, where A and D have substituents. Thus, ethylene was polymd. in the presence of 2,9-diphenyl-1,10-phenanthroline nickel dibromide to give linear polyethylene with mol. wt. 30,000.

IC ICM C08F004-602
 ICS C08F010-00
 CC 35-3 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 29, 67
 ST stereospecific polyolefin polyethylene catalyst
 diphenylphenanthroline nickel; phenanthroline nickel complex
 olefin polymn catalyst
 IT **Polyolefins**
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (polymn. catalysts for prepn. of highly stereospecific
 polyolefins)
 IT Polymerization catalysts
 (stereospecific; polymn. catalysts for prepn. of highly stereospecific
 polyolefins)
 IT 312539-47-2P 312539-49-4P 312539-51-8P
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
 USES (Uses)
 (catalyst; polymn. catalysts for prepn. of highly stereospecific
 polyolefins)
 IT 32534-86-4P, Methyl methacrylate-propylene copolymer
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (highly isotactic; polymn. catalysts for prepn. of highly
 stereospecific polyolefins)
 IT 9002-88-4P, **Polyethylene** 25085-53-4P, Isotactic
polypropylene
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (polymn. catalysts for prepn. of highly stereospecific
 polyolefins)
 IT 25677-69-4P 163704-47-0P 312539-48-3P 312539-50-7P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
 (Reactant or reagent)
 (polymn. catalysts for prepn. of highly stereospecific
 polyolefins)
 IT 66-71-7, 1,10-Phenanthroline 591-51-5, Phenyllithium 24544-04-5,
 2,6-Diisopropylaniline 28923-39-9 65232-56-6, Benzene,
 2-bromo-1-methyl-3-(1-methylethyl)-
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (polymn. catalysts for prepn. of highly stereospecific
 polyolefins)
 IT 312539-47-2P 312539-49-4P 312539-51-8P
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
 USES (Uses)
 (catalyst; polymn. catalysts for prepn. of highly stereospecific
 polyolefins)
 RN 312539-47-2 HCA
 CN Nickel, dibromo(2,9-diphenyl-1,10-phenanthroline-.kappa.N1,.kappa.N10)-
 (9CI) (CA INDEX NAME)



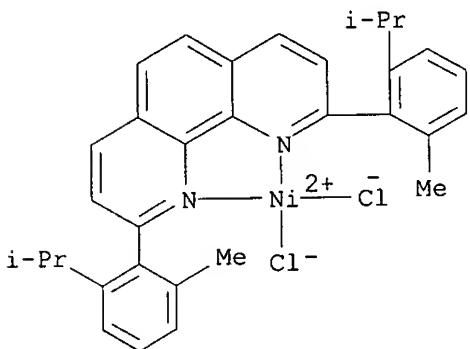
RN 312539-49-4 HCA

CN Nickel, [2,9-bis[2,6-bis(1-methylethyl)phenyl]-1,10-phenanthroline-.kappa.N1,.kappa.N10]dibromo- (9CI) (CA INDEX NAME)



RN 312539-51-8 HCA

CN Nickel, [2,9-bis[2-methyl-6-(1-methylethyl)phenyl]-1,10-phenanthroline-.kappa.N1,.kappa.N10]dichloro- (9CI) (CA INDEX NAME)



L45 ANSWER 7 OF 15 HCA COPYRIGHT 2003 ACS

132:294051 Synthesis of Branched Polyethylene Using (.alpha.-Diimine)nickel(II) Catalysts: Influence of Temperature, Ethylene Pressure, and Ligand Structure on Polymer Properties. Gates, Derek P.; Svejda, Steven A.; Onate, Enrique; Killian, Christopher M.; Johnson, Lynda K.; White, Peter S.; Brookhart, Maurice (Department of Chemistry, University of North Carolina at Chapel Hill, Chapel Hill, NC, 27599-3290, USA). Macromolecules, 33(7), 2320-2334 (English) 2000. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB Detailed investigations of the polymn. of ethylene by (.alpha.-diimine)nickel(II) catalysts are reported. Effects of structural variations of the diimine ligand on catalyst activities, polymer mol. wts., and polymer microstructure are described. The pre-catalysts employed were [{(2,6-RR'C6H3)-N:C(Nap)-C(Nap):N-(2,6-RR'C6H3)}NiBr2] (Nap = 1,8-naphthdiyl) (4a, R = CF3, R' = H; 4b, R = CF3, R' = CH3; 4c, R = C6F5, R' = H; 4d, R = C6F5, R' = CH3; 4e, R = CH3, R' = H; 4f, R = R' = CH3; 4g, R = R' = CH(CH3)2), [{(2,6-C6H3(i-Pr)2)-N:C(CH2CH2CH2CH2)C:N-(2,6-C6H3(i-Pr)2)}NiBr2] (5), and [{(2,6-C6H3(i-Pr)2)-N:C(Et)C(Me):N-(2,6-C6H3(i-Pr)2)}NiBr2] (6). Active polymn. catalysts were formed in situ by the combination of 4-6 with modified methylaluminoxane. In general, as the bulk and no. of ortho substituents increase, polymer mol. wts., turnover frequencies and extent of branching in the polyethylenes all increase. Effects of varying ethylene pressure and temp. on polymns. are

also reported. The degree of branching in the polymers rapidly decreases with increasing ethylene pressure but mol. wts. are not markedly affected. Temp. increases result in more extensive branching and moderate redns. in mol. wts. Catalyst productivity decreases above 60.degree. due to catalyst deactivation.

CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 75, 78

ST **Polyethylene** branched diiminnickel catalyst; nickel diimine catalyst prepn structure; crystal structure nickel diimine bromo catalyst

IT Polymerization catalysts
(synthesis of branched **Polyethylene** using (.alpha.-diimine)nickel(II) catalysts)

IT 264927-08-4P
RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(crystal structure; synthesis of branched **Polyethylene** using (.alpha.-diimine)nickel(II) catalysts)

IT 264927-11-9P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(crystal structure; synthesis of branched **Polyethylene** using (.alpha.-diimine)nickel(II) catalysts)

IT 82-86-0, Acenaphthenequinone 88-17-5 95-53-4, o-Toluidine, reactions 600-14-6, 2,3-Pentanedione 765-87-7, 1,2-Cyclohexanedione 827-15-6 24544-04-5 88301-98-8 147439-11-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(for catalyst prepn.; synthesis of branched **Polyethylene** using (.alpha.-diimine)nickel(II) catalysts)

IT 210295-15-1P 264926-99-0P 264927-00-6P 264927-01-7P 264927-04-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(for catalyst prepn.; synthesis of branched **Polyethylene** using (.alpha.-diimine)nickel(II) catalysts)

IT 156398-96-8 156398-97-9 163893-70-7
RL: CAT (Catalyst use); USES (Uses)
(synthesis of branched **Polyethylene** using (.alpha.-diimine)nickel(II) catalysts)

IT 264927-05-1P 264927-06-2P 264927-07-3P 264927-09-5P
264927-10-8P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis of branched **Polyethylene** using (.alpha.-diimine)nickel(II) catalysts)

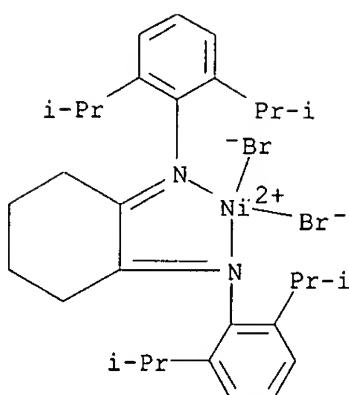
IT 264927-02-8P 264927-03-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis of branched **Polyethylene** using (.alpha.-diimine)nickel(II) catalysts)

IT 9002-88-4P, **Polyethylene**
RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of branched **Polyethylene** using (.alpha.-diimine)nickel(II) catalysts)

IT 264927-09-5P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis of branched **Polyethylene** using (.alpha.-diimine)nickel(II) catalysts)

RN 264927-09-5 HCA

CN Nickel, dibromo[N,N'-1,2-cyclohexanediyliidenebis[2,6-bis(1-methylethyl)benzenamine-.kappa.N]]- (9CI) (CA INDEX NAME)



L45 ANSWER 8 OF 15 HCA COPYRIGHT 2003 ACS

131:102661 Transition metal compounds useful as olefin

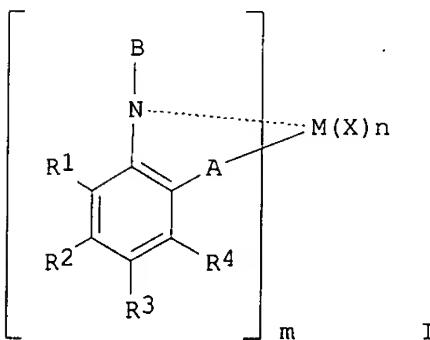
polymerization catalysts and polymerization method therewith.

Matsui, Shigekazu; Tsuru, Kazutaka; Nitahara, Masatoshi; Mitani, Makoto; Fujita, Terunori (Mitsui Chemicals Inc., Japan). Jpn. Kokai Tokkyo Koho

JP 11199592 A2 19990727 Heisei, 44 pp. (Japanese). CODEN:

JKXXAF. APPLICATION: JP 1998-200115 19980715. PRIORITY: JP 1997-193516 19970718; JP 1997-239632 19970904; JP 1997-308398 19971111.

GI



AB Olefin polymn. catalysts comprise (A) transition metal compds. (I) and (B) org. metal compds., organoaluminum oxy compds. and/or compds. capable to form ion pairs by reaction with I, wherein M = group 3-11 transition metal; m = 1-6; A = O, S, Se, OR5, NR5, NR5R6, :CR7R8; B = R9, R10, :CR11R12; R1-12 = H, halogen, hydrocarbyl, heterocyclic compd. residue, group contg. O, N, B, S, P, Si, Ge, or Sn; n = no. satisfying valence of M; X = H, halogen, hydrocarbyl, group contg. O, S, N, B, Al, P, halogen, Si, Ge, or Sn, or heterocyclic compd. residue. Thus, ethylene was polymd. in the presence of Me aluminoxane and I prep'd. from .alpha.-naphthylaldehyde, o-aminophenol, and titanium chloride to give a polyethylene with polymn. activity 12 g/mmol-Ti-h.

IC ICM C07F007-28

ICS C07F007-00; C07F017-00; C08F004-642; C08F010-00

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 67

ST transition metal compd olefin polymn catalyst; ethylene polymn methyl aluminoxane cocatalyst;

polyethylene prepn coordination polymn catalyst; naphthylaldehyde
aminophenol titanium chloride catalyst prepn

IT Aluminoxanes
RL: CAT (Catalyst use); USES (Uses)
(Me, cocatalysts; prepn. of **polyolefins** using transition
metal polym. catalysts)

IT Polymerization catalysts
(coordination; prepn. of transition metal **olefin**
polym. catalysts)

IT **Polyolefins**
RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of **polyolefins** using transition metal polym.
catalysts)

IT Transition metal compounds
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
USES (Uses)
(prepn. of transition metal **olefin polym.**
catalysts)

IT 100-99-2, uses 136040-19-2, Triphenylcarbenium
tetrakis(pentafluorophenyl)borate
RL: CAT (Catalyst use); USES (Uses)
(cocatalyst; prepn. of **polyolefins** using transition metal
polym. catalysts)

IT 1643-39-6P, 2-Amino-4,6-di-tert-butylphenol 20039-94-5P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)
(in ligand prepn.; prepn. of transition metal **olefin**
polym. catalysts)

IT 66-77-3, .alpha.-Naphthylaldehyde 75-77-4, reactions 95-55-6,
o-Aminophenol 96-76-4, 2,4-Di-tert-butylphenol 98-59-9,
p-Toluenesulfonyl chloride 100-52-7, Benzaldehyde, reactions 578-66-5,
8-Aminoquinoline 5036-87-3, 2-Methyl-7-aminobenzothiazole 5779-94-2,
2,5-Dimethylbenzaldehyde
RL: RCT (Reactant); RACT (Reactant or reagent)
(in ligand prepn.; prepn. of transition metal **olefin**
polym. catalysts)

IT 3159-42-0P 5932-25-2P 231283-96-8P 231283-97-9P 231284-00-7P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)
(ligand; prepn. of transition metal **olefin polym.**
catalysts)

IT 9002-88-4P, **Polyethylene**
RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of **polyolefins** using transition metal polym.
catalysts)

IT 231283-98-0P 231283-99-1P 231298-29-6P 231298-30-9P 231298-31-0P
231298-32-1P 231298-33-2P 231298-34-3P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
USES (Uses)
(prepn. of transition metal **olefin polym.**
catalysts)

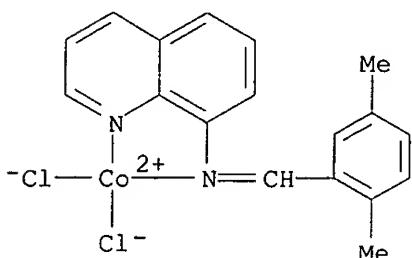
IT 7550-45-0, Titanium tetrachloride, reactions 7632-51-1, Vanadium
tetrachloride 7646-79-9, Cobalt dichloride, reactions 10026-11-6,
Zirconium tetrachloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. of transition metal **olefin polym.**
catalysts)

IT 231298-34-3P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
USES (Uses)

(prepn. of transition metal **olefin polym.**
catalysts)

RN 231298-34-3 HCA

CN Cobalt, dichloro[N-[(2,5-dimethylphenyl)methylene]-8-quinolinamine-
.kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)



L45 ANSWER 9 OF 15 HCA COPYRIGHT 2003 ACS

130:223627 Ni(II) and Pd(II) complexes of camphor-derived diazadiene ligands:
steric bulk tuning and **ethylene polymerization**.

Schleis, Thomas; Heinemann, Johannes; Spaniol, Thomas P.; Mulhaupt, Rolf;
Okuda, Jun (Inst. Anorg. Chem. und Analytische Chemie, Johannes
Gutenberg-Univ., Mainz, D-55099, Germany). Inorganic Chemistry
Communications, 1(11), 431-434 (English) 1998. CODEN: ICCOFP.
ISSN: 1387-7003. Publisher: Elsevier Science S.A..

AB Nickel(II) and palladium(II) centers from NiBr₂(DME) and PdCl₂(COD) were
coordinated to chiral 1,4-diazadiene camphor ligands. The ligands are
camphor derivs. and the imine nitrogens are attached to independently
varied 2- and 2,6-substituted aryl groups. Upon activation with
methylaluminoxane (MAO), the dibromo nickel complexes **polymerize**
ethylene and 1-hexene. The polymn. parameters are dependent on
the steric features of aryl substituents on imine nitrogens.

CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 30, 67, 75, 78

IT 220935-70-6P 220935-73-9P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);
USES (Uses)
(prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes
and use in ethylene and hexene polymn.)

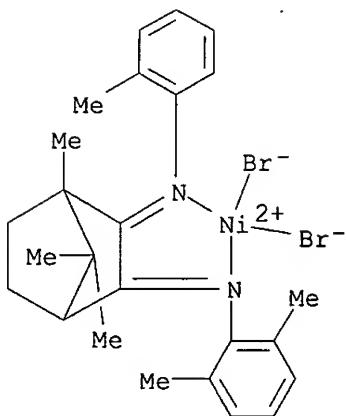
IT 220935-74-0P 220935-75-1P 220935-78-4P 220935-79-5P
220935-80-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes
and use in ethylene and hexene polymn.)

IT 220935-67-1P 220935-68-2P 220935-69-3P
220935-71-7P 220935-72-8P 220935-81-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes
and use in ethylene and hexene polymn.)

IT 220935-70-6P 220935-73-9P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);
USES (Uses)
(prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes
and use in ethylene and hexene polymn.)

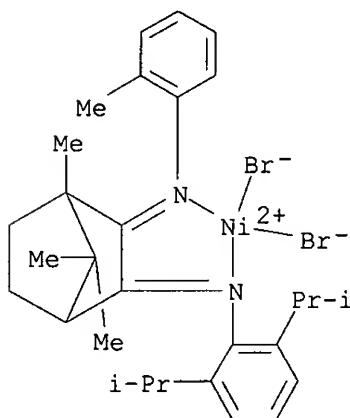
RN 220935-70-6 HCA

CN Nickel, dibromo[2,6-dimethyl-N-[(1S,4R)-4,7,7-trimethyl-3-[(2-
methylphenyl)imino-.kappa.N]bicyclo[2.2.1]hept-2-ylidene]benzenamine-
.kappa.N]-, (SP-4-3)- (9CI) (CA INDEX NAME)



RN 220935-73-9 HCA

CN Nickel, [2,6-bis(1-methylethyl)-N-[(1S,4R)-4,7,7-trimethyl-3-[(2-methylphenyl)imino]-kappa.N]bicyclo[2.2.1]hept-2-ylidene]benzenamine- .kappa.N]dibromo-, (SP-4-3)- (9CI) (CA INDEX NAME)

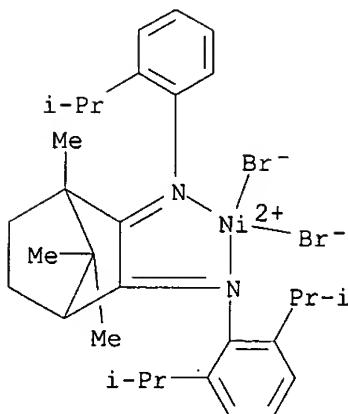


IT 220935-74-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes and use in ethylene and hexene polymn.)

RN 220935-74-0 HCA

CN Nickel, [2,6-bis(1-methylethyl)-N-[(1S,4R)-4,7,7-trimethyl-3-[(2-(1-methylethyl)phenyl)imino]-kappa.N]bicyclo[2.2.1]hept-2-ylidene]benzenamine- .kappa.N]dibromo-, (SP-4-3)- (9CI) (CA INDEX NAME)

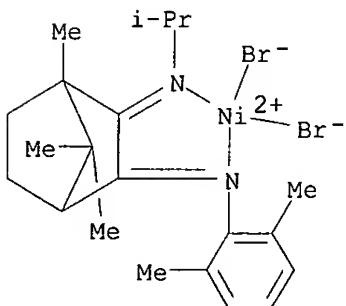


IT 220935-67-1P 220935-69-3P 220935-71-7P
220935-72-8P 220935-81-9P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes
and use in ethylene and hexene polymn.)

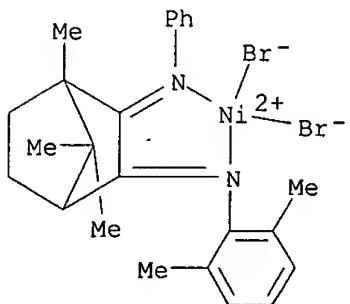
RN 220935-67-1 HCA

CN Nickel, dibromo[2,6-dimethyl-N-[(1S,4R)-4,7,7-trimethyl-3-[(1-methylethyl)imino-.kappa.N]bicyclo[2.2.1]hept-2-ylidene]benzenamine-.kappa.N]-, (SP-4-3)- (9CI) (CA INDEX NAME)



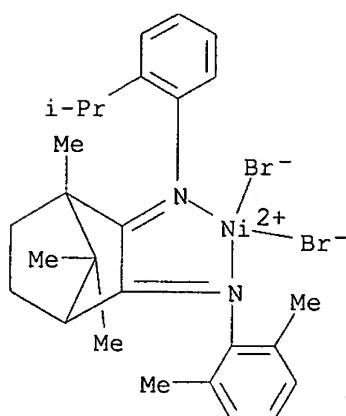
RN 220935-69-3 HCA

CN Nickel, dibromo[2,6-dimethyl-N-[(1S,4R)-4,7,7-trimethyl-3-(phenylimino-
.kappa.N)bicyclo[2.2.1]hept-2-ylidene]benzenamine-.kappa.N]-, (SP-4-3)-
(9CI) (CA INDEX NAME)



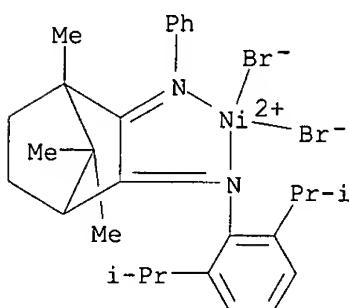
RN 220935-71-7 HCA

CN Nickel, dibromo[2,6-dimethyl-N-[(1S,4R)-4,7,7-trimethyl-3-[[2-(1-methylethyl)phenyl]imino-.kappa.N]bicyclo[2.2.1]hept-2-ylidene]benzenamine-.kappa.N]-, (SP-4-3)- (9CI) (CA INDEX NAME)



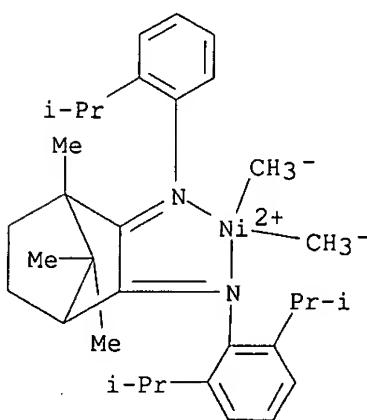
RN 220935-72-8 HCA

CN Nickel, [2,6-bis(1-methylethyl)-N-[(1S,4R)-4,7,7-trimethyl-3-(phenylimino-.kappa.N)bicyclo[2.2.1]hept-2-ylidene]benzenamine-.kappa.N]dibromo-, (SP-4-3)- (9CI) (CA INDEX NAME)



RN 220935-81-9 HCA

CN Nickel, [2,6-bis(1-methylethyl)-N-[(1S,4R)-4,7,7-trimethyl-3-[[2-(1-methylethyl)phenyl]imino-.kappa.N]bicyclo[2.2.1]hept-2-ylidene]benzenamine-.kappa.N]dimethyl-, (SP-4-3)- (9CI) (CA INDEX NAME)

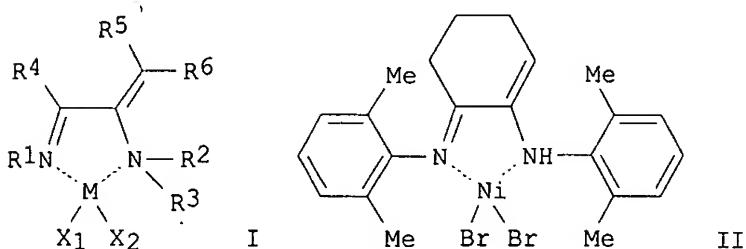


L45 ANSWER 10 OF 15 HCA COPYRIGHT 2003 ACS

129:122982 Transition metal complexes with diimine ligands as **olefin polymerization** components, **olefin polymerization** catalysts containing them, and polymerization of **olefins** using the catalysts. Ban, Kiyotaka; Nitabara, Masatoshi; Fukuoka, Daisuke (Mitsui Petrochemical Industries, Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 10182679 A2 19980707 Heisei, 18 pp. (Japanese). CODEN: JKXXAF.

APPLICATION: JP 1996-349021 19961226.

GI



AB The transition metal complexes used as **olefin polymer** catalyst components comprise I [M = Group 4-6 and 8-10 transition metal; R1-6 = H, hydrocarbyl, C1-20 halo-, Si-, O-, S-, N-, or P-contg. hydrocarbyl; .gt;req.2 of R1-6 may form a ring; X1, X2 = H, halo, C1-20 (halo-, O-, or S-contg.) hydrocarbyl]. The **olefin polymer** catalysts contain (A) I and (B) org. Al compds., org. aluminoxy compds., and/or ion-pair-forming compds. by reaction with I. **Olefins** are (co)polymd. in the presence of the above catalysts. Thus, ethylene was polymd. at ambient temp. for 1 h in 10 mL PhMe contg. 3 mmol (based on Al) Me aluminoxane and 0.01 mmol II (obtained from 1,2-cyclohexanedione, 2,6-dimethylaniline, and NiBr₂) to give rubber-like polymer with polymn. activity 136 kg/mol-Ni-h, Mw 44,000, Mn 17,000, Mw/Mn 2.63, and Tg -70.8.degree..

IC ICM C07F015-04

ICS C08F004-642; C08F004-70; C08F010-00

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 29

ST transition metal diimine complex polymn catalyst; **olefin polymer** catalyst metal diimine complex; **ethylene** polymn nickel complex aluminoxane catalyst

IT Aluminoxanes

RL: CAT (Catalyst use); USES (Uses)
(Me; polymn. of **olefins** by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT. Transition metal complexes

RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(diimine; polymn. of **olefins** by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT Imines

Imines

RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(diimines, transition metal complexes; polymn. of **olefins** by using transition metal diimine complex and Al-contg. compds. as

catalysts)

IT Polymerization catalysts
(polymn. of **olefins** by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT **Polyolefins**
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(polymn. of **olefins** by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT 210295-13-9P 210295-15-1P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(catalyst from; polymn. of **olefins** by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT 87-62-7, 2,6-Dimethylaniline 765-87-7, 1,2-Cyclohexanedione
24544-04-5, 2,6-Diisopropylaniline
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalyst from; polymn. of **olefins** by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT 97-93-8, Triethylaluminum, uses 100-99-2, Triisobutylaluminum, uses 563-43-9, Ethylaluminum dichloride, uses 917-65-7, Methylaluminum dichloride 1184-58-3, Dimethylaluminum chloride 56252-55-2, Methylaluminum bis(2,6-di-tert-butyl-4-methylphenoxyde)
RL: CAT (Catalyst use); USES (Uses)
(polymn. of **olefins** by using transition metal diimine complex and Al-contg. compds. as catalysts)

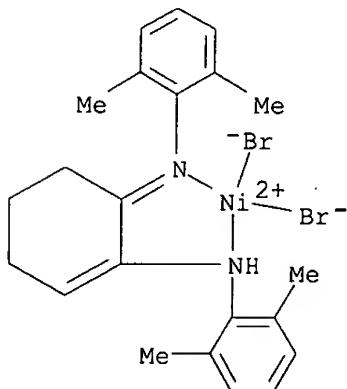
IT 210295-10-6P 210295-11-7P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(polymn. of **olefins** by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT 9002-88-4P
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(polymn. of **olefins** by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT 210295-10-6P 210295-11-7P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(polymn. of **olefins** by using transition metal diimine complex and Al-contg. compds. as catalysts)

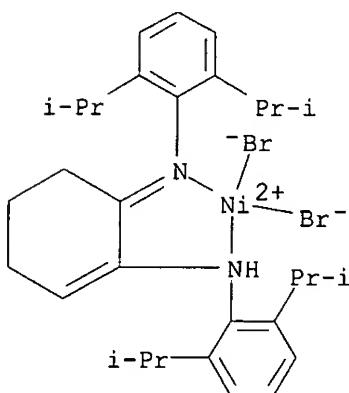
RN 210295-10-6 HCA

CN Nickel, dibromo[N-[2-[(2,6-dimethylphenyl)amino-.kappa.N]-2-cyclohexen-1-ylidene]-2,6-dimethylbenzenamine-.kappa.N]- (9CI) (CA INDEX NAME)



RN 210295-11-7 HCA

CN Nickel, [N-[2-[[2,6-bis(1-methylethyl)phenyl]amino-.kappa.N]-2-cyclohexen-1-ylidene]-2,6-bis(1-methylethyl)benzenamine-.kappa.N]dibromo- (9CI) (CA INDEX NAME)



L45 ANSWER 11 OF 15 HCA COPYRIGHT 2003 ACS

129:4275 Aerobic epoxidation of **olefins** catalyzed by square-planar nickel(II) complexes of bis- N,N' -disubstituted oxamides and related ligands. Fernandez, Isabel; Pedro, Jose R.; Rosello, Antonio L.; Ruiz, Rafael; Ottenwaelder, Xavier; Journaux, Yves (Dep. Quimica Organica, Fac. Quimica, Univ. Valencia, Valencia, 46100, Spain). *Tetrahedron Letters*, 39(18), 2869-2872 (English) 1998. CODEN: TELEAY. ISSN: 0040-4039. Publisher: Elsevier Science Ltd..

AB The new square-planar nickel(II) complexes of $\text{o-phenylenebis(N'-methyloxamide)}$ and related ligands catalyze the aerobic epoxidn. of **olefins** with co-oxidn. of pivalaldehyde; the modulation of catalytic activity by substituents along this series of metal complexes points out the role of high-valent nickel(IV)-oxo species as the putative intermediate in these oxygen atom transfer reactions.

CC 21-2 (General Organic Chemistry)
Section cross-reference(s): 27

ST aerobic epoxidn **olefin** planar nickel complex; alkene aerobic epoxidn planar nickel complex; epoxide prepn alkene planar nickel

IT Epoxidation
Epoxidation catalysts

(aerobic epoxidn. of **olefins** catalyzed by square-planar nickel complexes)

IT Alkenes, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(aerobic epoxidn. of **olefins** catalyzed by square-planar nickel complexes)

IT 207407-42-9P 207407-44-1P 207407-46-3P

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(aerobic epoxidn. of **olefins** catalyzed by square-planar nickel complexes)

IT 95-13-6, Indene 103-30-0, trans-Stilbene 106-22-9, β -Citronellol 150-84-5, β -Citronellyl acetate 447-53-0, 1,2-Dihydronaphthalene 630-19-3, Pivalaldehyde 645-49-8, cis-Stilbene 873-66-5, trans- β -Methylstyrene 55915-70-3, β -Citronellol methyl ether 87921-26-4, β -Citronellol tert-butyldimethylsilyl ether

RL: RCT (Reactant); RACT (Reactant or reagent)
(aerobic epoxidn. of **olefins** catalyzed by square-planar nickel complexes)

IT 768-22-9P, Indene oxide 1564-98-3P, Citronellol oxide 1787-98-0P
 17180-88-0P, 1,2-Naphthalene oxide 38595-13-0P, Citronellol methyl ether
 epoxide 121618-71-1P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (aerobic epoxidn. of **olefins** catalyzed by square-planar
 nickel complexes)

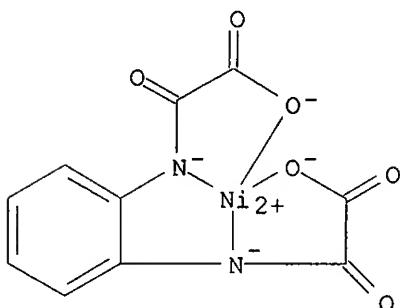
IT 207407-46-3P
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);
 USES (Uses)
 (aerobic epoxidn. of **olefins** catalyzed by square-planar
 nickel complexes)

RN 207407-46-3 HCA

CN Methanaminium, N,N,N-trimethyl-, (SP-4-2)-[[2,2'-[1,2-phenylenedi(imino-.kappa.N)]bis[2-oxoacetato-.kappa.O]](4-)]nickelate(2-) (2:1) (9CI) (CA INDEX NAME)

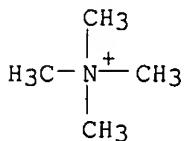
CM 1

CRN 207407-45-2
 CMF C10 H4 N2 Ni O6
 CCI CCS



CM 2

CRN 51-92-3
 CMF C4 H12 N

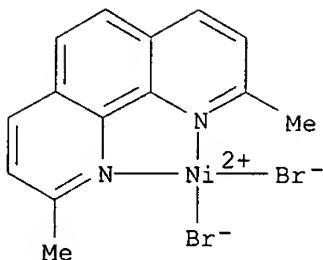


L45 ANSWER 12 OF 15 HCA COPYRIGHT 2003 ACS
 127:176850 Transition metal complex catalyst for **olefin**
polymerization with high activity. Igai, Shigeru; Imaoka, Koji;
 Murakami, Masato; Kai, Yoshiyuki (Ube Industries, Ltd., Japan). Jpn.
 Kokai Tokkyo Koho JP 09194525 A2 19970729 Heisei, 6 pp.
 (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-7535 19960119.

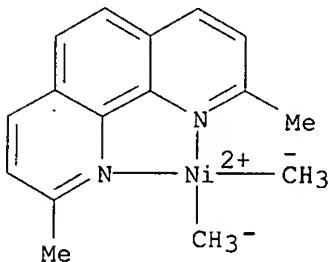
AB Title catalyst comprises LMX2 or Q(Pz)2MX2 [M = Group VIII transition metal; X = H, halo, C1-20 hydrocarbyl, C1-20 hydrocarbyloxy, C1-20 hydrocarbylamino, C1-20 hydrocarbon-contg. silyl; L = silyl-, hydrocarbyl-, hydrocarbyloxy-, or hydrocarbylamino-substituted 2,2-bipyridine, 2,2-biquinoline, 1,10-phenanthroline, or 2,2-bipyrimidine;

Pz = (substituted) pyrazoyl; Q = group linking 2 pyrazoyls} and a promoter selected from Group I-III organometallic compds., org. Al oxy compds., and ionic compds. which are reacted with the transition metal compds. to form cationic compds. Thus, ethylene (at 1000 mL/min) was polymd. in a PhMe soln. contg. 10 mmol Me alumoxane and 10 .mu.mol dibromo(2,9-dimethyl-1,10-phenanthroline)nickel at 20.degree. for 1 h to give 6.85 kg **Polyethylene**/mmol-Ni-h-atm showing wt.-av. mol. wt. 53,000 and wt.-av. mol. wt./no.-av. mol. wt. 2.8.

IC ICM C08F004-70
IC S C08F010-00
CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 39, 67
ST **olefin polymn** transition metal catalyst;
organometallic compd catalyst promoter polymn; aluminoxane catalyst
promoter **olefin polymn**; ionic compd catalyst promoter
polymn; phenanthroline nickel complex catalyst polymn
IT Aluminoxanes
RL: CAT (Catalyst use); USES (Uses)
(Me, catalyst promoters; transition metal complex catalyst for
olefin polymn. with high activity)
IT Polymerization catalysts
(transition metal complex catalyst for **olefin polymn**
. with high activity)
IT Group VIII element complexes
RL: CAT (Catalyst use); USES (Uses)
(transition metal complex catalyst for **olefin polymn**
. with high activity)
IT Ethylene-propylene rubber
RL: IMF (Industrial manufacture); PREP (Preparation)
(transition metal complex catalyst for **olefin polymn**
. with high activity)
IT **Polyolefins**
RL: IMF (Industrial manufacture); PREP (Preparation)
(transition metal complex catalyst for **olefin polymn**
. with high activity)
IT 100-99-2, Triisobutylaluminum, uses
RL: CAT (Catalyst use); USES (Uses)
(catalyst promoters; transition metal complex catalyst for
olefin polymn. with high activity)
IT 9010-79-1P
RL: IMF (Industrial manufacture); PREP (Preparation)
(ethylene-propylene rubber, transition metal complex catalyst for
olefin polymn. with high activity)
IT 112187-53-8 118612-00-3 193813-22-8 193813-23-9
RL: CAT (Catalyst use); USES (Uses)
(transition metal complex catalyst for **olefin polymn**
. with high activity)
IT 9002-88-4P, **Polyethylene**
RL: IMF (Industrial manufacture); PREP (Preparation)
(transition metal complex catalyst for **olefin polymn**
. with high activity)
IT 193813-22-8 193813-23-9
RL: CAT (Catalyst use); USES (Uses)
(transition metal complex catalyst for **olefin polymn**
. with high activity)
RN 193813-22-8 HCA
CN Nickel, dibromo(2,9-dimethyl-1,10-phenanthroline-.kappa.N1,.kappa.N10)-
(9CI) (CA INDEX NAME)



RN 193813-23-9 HCA

CN Nickel, (2,9-dimethyl-1,10-phenanthroline-.kappa.N1,.kappa.N10)dimethyl-
(9CI) (CA INDEX NAME)

L45 ANSWER 13 OF 15 HCA COPYRIGHT 2003 ACS

126:343438 Aerobic epoxidation of **olefins** catalyzed by square-planar cobalt(III) complexes of bis-N,N'-disubstituted oxamides and related ligands. Estrada, Jesus; Fernandez, Isabel; Petro, Jose R.; Ottenwaelder, Xavier; Ruiz, Rafael; Journaux, Yves (Facultat Quimica, Universitat Valencia, Burjassot, E-46100, Spain). *Tetrahedron Letters*, 38(13), 2377-2380 (English) 1997. CODEN: TELEAY. ISSN: 0040-4039.

OTHER SOURCES: CASREACT 126:343438. Publisher: Elsevier.

AB Three new monomeric square-planar cobalt(III) complexes bis-N,N'-disubstituted oxamides 2-(XCOCON)C6H4NCOCOY (X = O, Y = O, NMe; X = Y = NMe) and related ligands have been prepd. These complexes catalyze the epoxidn. of tri- and disubstituted **olefins** with mol. oxygen/pivalaldehyde with very good yields.

CC 27-2 (Heterocyclic Compounds (One Hetero Atom))
Section cross-reference(s): 78

ST epoxidn **olefin** cobalt oxamide catalyst

IT Epoxidation

Epoxidation catalysts

(epoxidn. of **olefins** using cobalt(III)-oxamide catalysts)

IT Alkenes, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(epoxidn. of **olefins** using cobalt(III)-oxamide catalysts)

IT 190008-71-0 190008-73-2 190008-75-4

RL: CAT (Catalyst use); USES (Uses)

(epoxidn. of **olefins** using cobalt(III)-oxamide catalysts)IT 58-72-0 95-13-6, 1H-Indene 100-42-5, Styrene, reactions 103-30-0
106-22-9 111-81-9, Methyl 10-undecenoate 150-84-5 447-53-0

645-49-8 873-66-5 55915-70-3 87921-26-4

RL: RCT (Reactant); RACT (Reactant or reagent)

(epoxidn. of **olefins** using cobalt(III)-oxamide catalysts)IT 96-09-3P, Styrene oxide 768-22-9P 1439-07-2P, trans-Stilbene oxide
1564-98-3P 1787-98-0P 2461-34-9P 4479-98-5P 22663-09-8P

23355-97-7P 38595-13-0P 121618-71-1P

RL: SPN (Synthetic preparation); PREP (Preparation)

(epoxidn. of **olefins** using cobalt(III)-oxamide catalysts)

IT 148876-51-1 188727-93-7 188727-95-9

RL: RCT (Reactant); RACT (Reactant or reagent)

(for prepn. of cobalt(III)-oxamide catalysts for **olefin** epoxidn.)

IT 190008-71-0

RL: CAT (Catalyst use); USES (Uses)

(epoxidn. of **olefins** using cobalt(III)-oxamide catalysts)

RN 190008-71-0 HCA

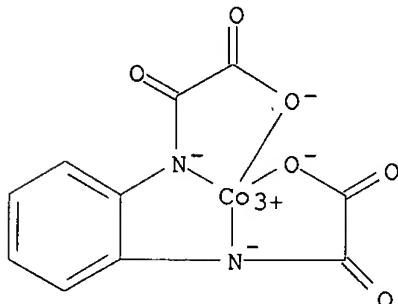
CN Methanaminium, N,N,N-trimethyl-, (SP-4-2)-[[2,2'-(1,2-phenylenedi(imino-.kappa.N)]bis[2-oxoacetato-.kappa.O]](4-)]cobaltate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 190008-70-9

CMF C10 H4 Co N2 O6

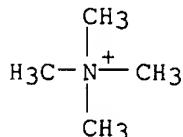
CCI CCS



CM 2

CRN 51-92-3

CMF C4 H12 N



L45 ANSWER 14 OF 15 HCA COPYRIGHT 2003 ACS

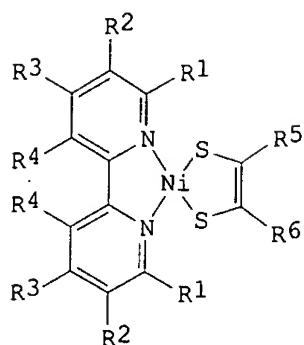
110:87481 (2,2'-bipyridine-(cis-1,2-ethylenedithiolato) nickel derivatives.

Suzuki, Yoshiaki (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo

Koho JP 63126889 A2 19880530 Showa, 19 pp. (Japanese). CODEN:

JKXXAF. APPLICATION: JP 1986-271114 19861114.

GI



AB The derivs. comprise I (R1-4 = H, alkyl, alkoxy, Ph, alkoxycarbonyl, aryloxycarbonyl, or a part of a ring; R5,6 = H, alkyl, aryl or CN; R5, R6, and R4 may form a ring) excluding I (R1-4 = H and R5,6 = Ph; R1-3 = H, R4, R4 = a part of benzene ring of 1,10-phenanthroline, and R5,6 = Ph; and R1-4 = H and R5,6 = CN). The derivs. absorb near-IR radiation, stabilize an org. substrate material (e.g., **polypropylene**), and are useful as optical filters and photog. stabilizers. I (R1-4 = H and R5,6 = Me) was prep'd. by adding MeONa to an anhyd. MeOH dispersion contg. 4,5-dimethyl-1,3-dithiol-2-one, stirring, and adding (2,2'-bipyridine)dichloronickel.

IC ICM C07F015-04

ICA B41M005-18; B41M005-26; C09K009-02; G02B005-22

CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 73, 74

IT 9003-07-0, **Polypropylene**

RL: RCT (Reactant); RACT (Reactant or reagent)
(bipyridine ethylene dithiolato nickel stabilizers for)

IT 118455-00-8P 118455-01-9P 118473-01-1P 119059-42-6P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

IT 22775-90-2 22980-76-3, (1,10-Phenonitroline)dichloro nickel
118455-02-0, (4,7-Diphenyl-1,10-phenonitroline)dichloro nickel

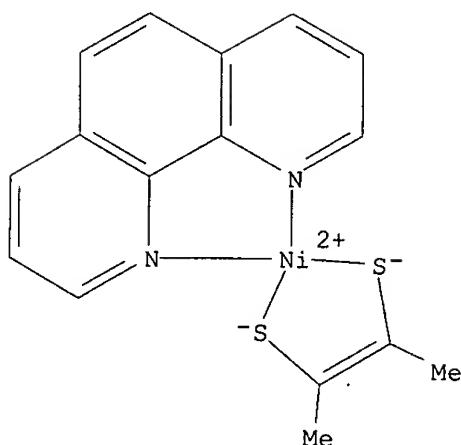
RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reaction of, with dithiolones)

IT 118455-01-9P

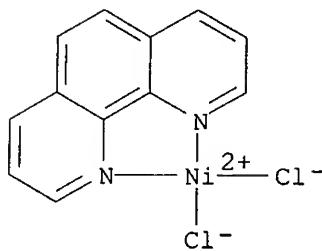
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

RN 118455-01-9 HCA

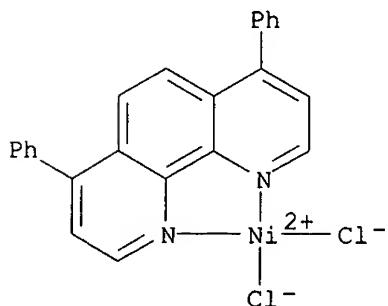
CN Nickel, [2-butene-2,3-dithiolato(2--S,S')](1,10-phenanthroline-N1,N10)-,
(SP-4-2)- (9CI) (CA INDEX NAME)



IT 22980-76-3, (1,10-Phenonitroline)dichloro nickel
 118455-02-0, (4,7-Diphenyl-1,10-phenonitroline)dichloro nickel
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (substitution reaction of, with dithiolones)
 RN 22980-76-3 HCA
 CN Nickel, dichloro(1,10-phenanthroline-.kappa.N1,.kappa.N10)-, (T-4)- (9CI)
 (CA INDEX NAME)



RN 118455-02-0 HCA
 CN Nickel, dichloro(4,7-diphenyl-1,10-phenanthroline-N1,N10)-, (SP-4-2)-
 (9CI) (CA INDEX NAME)



L45 ANSWER 15 OF 15 HCA COPYRIGHT 2003 ACS
 105:42988 Studies of copper(I) olefin complexes. Formation
 constants of copper olefin complexes with 2,2'-bipyridine,
 1,10-phenanthroline, and their derivatives. Munakata, Megumu; Kitagawa,

Susumu; Kosome, Shigeru; Asahara, Akio (Dep. Chem., Kinki Univ., Higashi-Osaka, 577, Japan). Inorganic Chemistry, 25(15), 2622-7 (English) 1986. CODEN: INOCAJ. ISSN: 0020-1669. OTHER SOURCES: CASREACT 105:42988.

AB Twenty-five new copper(I) **olefin** complexes, $[\text{Cu}(\text{biL})(\text{olefin})]^{+}$ (**biL** = the derivs. of 2,2'-bipyridine and 1,10-phenanthroline (**phen**); **olefin** = ethylene and derivs.), were synthesized, and the formation consts. were detd. spectrophotometrically in 0.3 and 0.5 M MeCN/EtOH. The influence of substituents of the **biL** and **olefin** on the formation consts. and the ^{1}H NMR of the **olefinic** protons of coordinated ethylene were investigated. The formation const. for the Cu ethylene complex $\text{Cu}(\text{biL})^{+}-\text{C}_2\text{H}_4$ increased with increasing pKa of **biL**; electron-donating substituents such as Me on **biL** stabilize the ethylene complexes, whereas electron-withdrawing substituents such as Cl destabilize it. ^{1}H NMR resonances of the **olefinic** protons of $[\text{Cu}(\text{biL})(\text{C}_2\text{H}_4)]^{+}$ move upfield as the pKa value of **biL** increases, indicating an increase in the electron d. around the **olefinic** protons. These findings demonstrate that the σ . donation from **biL** to Cu(I) is enhanced as the basicity of **biL** increases and the resulting electron-rich Cu(I) enhances π . back-donation in the Cu(I)-ethylene bonding. The formation consts. of $[\text{Cu}(\text{phen})(\text{olefin})]^{+}$ at 25. degree. vary from 0.2 to 28 M⁻¹, although they are not as sensitive to the substituent groups on the double bond of the **olefin** as those of Ni(0) **olefin** complexes. There is no simple correlation of the formation const. with the Hammett σ ., as is distinct from Ni(0) and Ag(I) **olefin** complexes.

CC 29-9 (Organometallic and Organometalloidal Compounds)

ST Section cross-reference(s): 22

ST copper **olefin** complex; bipyridine **olefin** copper complex; phenanthroline **olefin** copper complex; formation const **olefin** copper complex

IT Formation constant and Stability constant
(for copper **olefin** complexes)

IT 102648-75-9

RL: PRP (Properties)
(formation consts. for)

IT 14057-91-1

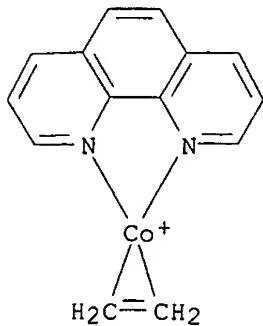
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with **olefins** and nitrogen compds.)

IT 102648-75-9

RL: PRP (Properties)
(formation consts. for)

RN 102648-75-9 HCA

CN Cobalt(1+), (.eta.2-ethene)(1,10-phenanthroline-N1,N10)- (9CI) (CA INDEX NAME)

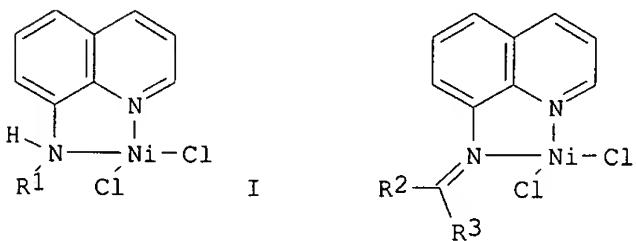


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L47 ANSWER 1 OF 5 HCA COPYRIGHT 2003 ACS

138:122958 8-aminoquinoline nickel complexes as catalysts for ethylene polymerization. Sun, Wenhua; Li, Zilong; Hu, Youliang; Ma, Zhi; Li, Xiuhua (Inst. of Chemistry, Chinese Academy of Sciences, Peop. Rep. China). Faming Zhanli Shenqing Gongkai Shuomingshu CN 1334143 A 20020206, 11 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 2000-121033 20000717.

GI



AB 8-Aminoquinoline or its derivs. reacts with NiCl₂ to form nickel complexes I or II, which are high active catalysts for ethylene polymn., where R₁ = benzyl, cyclohexenyl, substituted cyclohexenyl, R₂ and R₃ = Me, Ph or camphyl. Thus, ethylene was polymd. in the presence of 5.3 .mu.mol [N-(1-phenylethylidene)-8-quinolinamine]nickel dichloride and 10 mmol MAO for 10 min to produce 8.83 g PE with an activity of 1.0.times.10⁷ g PE/mol Ni.cntdot.h.

IC ICM B01J031-22

ICS B01J031-18

CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 67

ST polymn catalyst aminoquinoline nickel; polyethylene manuf nickel aminoquinoline chloride catalyst

IT Aluminoxanes

RL: CAT (Catalyst use); USES (Uses)
(Me, cocatalyst; nickel catalysts for ethylene polymn
)

IT Polymerization catalysts
(nickel catalysts for ethylene polymn.)

IT Polyolefins

RL: IMF (Industrial manufacture); PREP (Preparation)
(nickel catalysts for ethylene polymn.)

IT 124932-32-7P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(in prepn. of nickel catalysts for ethylene polymn
)

IT 76-22-2, Camphor 98-86-2, Acetophenone, reactions 100-44-7, Benzyl chloride, reactions 108-94-1, Cyclohexanone, reactions 578-66-5, 8-Aminoquinoline 2816-57-1, 2,6-Dimethylcyclohexanone 7791-20-0, Nickel dichloride hexahydrate

RL: RCT (Reactant); RACT (Reactant or reagent)
 (in prepn. of nickel catalysts for ethylene polymn.)

IT 104-15-4, p-Methylbenzenesulfonic acid, reactions
 RL: RGT (Reagent); RACT (Reactant or reagent)
 (in prepn. of nickel catalysts for ethylene polymn.)

IT 37385-01-6P 488808-82-8P 488808-83-9P 488808-84-0P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
 (ligand; in prepn. of nickel catalysts for ethylene polymn.)

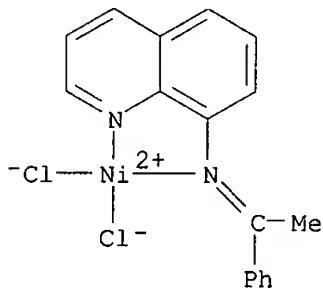
IT 368890-64-6P 368890-65-7P 368890-66-8P
 368890-67-9P 368890-68-0P 368890-69-1P
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
 USES (Uses)
 (nickel catalysts for ethylene polymn.)

IT 9002-88-4P, Polyethylene
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (nickel catalysts for ethylene polymn.)

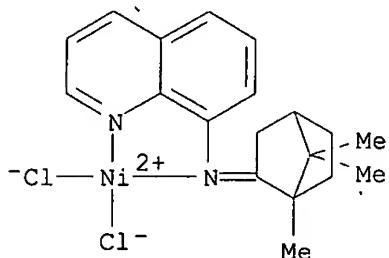
IT 368890-64-6P 368890-65-7P 368890-66-8P
 368890-67-9P 368890-68-0P 368890-69-1P
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
 USES (Uses)
 (nickel catalysts for ethylene polymn.)

RN 368890-64-6 HCA

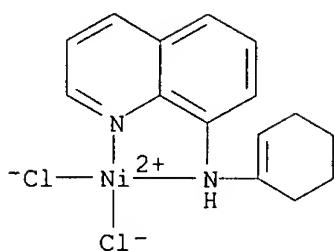
CN Nickel, dichloro[N-(1-phenylethylidene)-8-quinolinamine-.kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)



RN 368890-65-7 HCA
 CN Nickel, dichloro[N-(1,7,7-trimethylbicyclo[2.2.1]hept-2-ylidene)-8-quinolinamine-.kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)

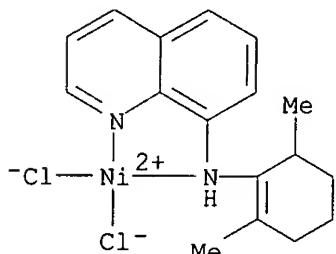


RN 368890-66-8 HCA
 CN Nickel, dichloro(N-1-cyclohexen-1-yl-8-quinolinamine-.kappa.N1,.kappa.N8)- (9CI) (CA INDEX NAME)



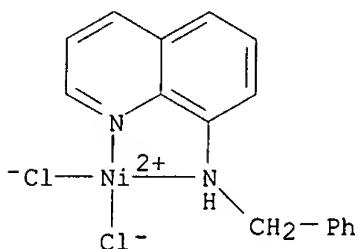
RN 368890-67-9 HCA

CN Nickel, dichloro[N-(2,6-dimethyl-1-cyclohexen-1-yl)-8-quinolinamine-.kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)



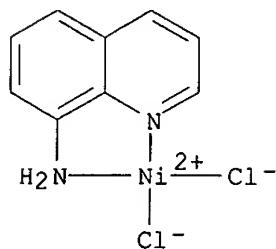
RN 368890-68-0 HCA

CN Nickel, dichloro[N-(phenylmethyl)-8-quinolinamine-.kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)



RN 368890-69-1 HCA

CN Nickel, dichloro(8-quinolinamine-.kappa.N1,.kappa.N8)- (9CI) (CA INDEX NAME)



L47 ANSWER 2 OF 5 HCA COPYRIGHT 2003 ACS

138:90110 Ethylene oligomerization catalyzed by nickel (II) diimine complexes.
Qian, Ming-Xing; Wang, Mei; Zhang, Yu-Liang; He, Ren (State Key Laboratory

of Fine Chemicals, Dalian University of Technology, Dalian, 116012, Peop. Rep. China). Chinese Journal of Chemistry, 20(7), 676-680 (English) 2002. CODEN: CJOCEV. ISSN: 1001-604X. Publisher: Science Press.

AB Ethylene oligomerization has been investigated by using catalyst systems composed of nickel(II) diimine complexes (diimine = N,N'-o-phenylene bis(salicylideneiminato), N,N'-o-phenylene-bis-benzal, N,N'-ethylenebis-benzal) and ethyl-aluminoxane. The main products in toluene and at 110-200.degree.C were olefins with low carbon nos. (C4-C10). Effects of reaction temp., Al/Ni molar ratio and reaction period on both the catalytic activity and product distribution were explored. The activity of 1.84 .times. 105 g of oligomer/(molNI .cntdot. h), with 87.4% of selectivity to C4-C10 olefins, was attained at 200.degree.C in the reaction when a catalyst composed of NiCl₂(Ph-CH = o-NC₆H₄N =CH Ph) and ethyl-aluminoxane was used.

CC 35-3 (Chemistry of Synthetic High Polymers)

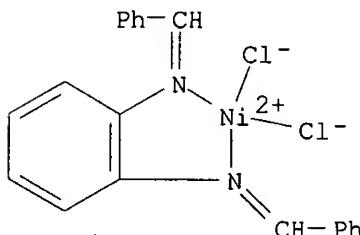
IT 34877-97-9 36433-88-2 **482587-52-0**
RL: CAT (Catalyst use); USES (Uses)
(ethylene oligomerization catalyzed by nickel (II) diimine complexes)

IT 9002-88-4P, **Polyethylene**
RL: SPN (Synthetic preparation); PREP (Preparation)
(oligomers; ethylene oligomerization catalyzed by nickel (II) diimine complexes)

IT **482587-52-0**
RL: CAT (Catalyst use); USES (Uses)
(ethylene oligomerization catalyzed by nickel (II) diimine complexes)

RN 482587-52-0 HCA

CN Nickel, [N,N'-bis(phenylmethylene)-1,2-benzenediamine-.kappa.N, .kappa.N']dichloro- (9CI) (CA INDEX NAME)



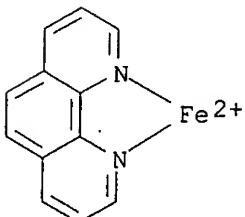
L47 ANSWER 3 OF 5 HCA COPYRIGHT 2003 ACS

137:223925 Electrochromic device. Armgarth, Marten; Kugler, Thomas; Berggren, Rolf M.; Remonen, Tommi M. (Swed.). U.S. Pat. Appl. Publ. US 2002126365 A1 20020912, 23 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-91399 20020307. PRIORITY: SE 2001-747 20010307; US 2001-PV276105 20010316.

AB Supported or self-supporting electrochromic devices are described which comprise .gtoreq.1 electrochromic element comprising .gtoreq.1 first material that is elec. conducting in .gtoreq.1 oxidn. state and .gtoreq.1 electrochromic material, wherein the first material and the electrochromic material can be the same or different, .gtoreq.1 layer of a solidified electrolyte which is in direct elec. contact with the electrochromic element, and .gtoreq.2 electrodes, each of which is in direct elec. contact with .gtoreq.1 of the electrolyte layer(s) and not in direct elec. contact with the electrochromic element. Displays and mirrors incorporating such a device, as well as processes for the prodn. of the devices are also described. Methods for addressing an electrochem. active element are also provided. By allowing the electrochromic material to be addressed via the electrolyte, the electrode architecture is not limited by the requirement that the electrodes of the voltage supply be in direct

elec. contact with the electrochromic material for electrochromic effects to occur.

IC ICM G02F001-15
 ICS G02F001-153
 NCL 359265000
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 72, 74, 76
 IT 61-73-4, Methylene blue 81-93-6, Phenosafranine 94-10-0, p-Ethoxychrysoidine 302-04-5, Thiocyanate anion, uses 366-29-0, N,N',N'-Tetramethylbenzidine 2650-18-2, Erioglaucine A 9002-88-4, **Polyethylene** 9002-89-5, Poly(vinyl alcohol) 9002-89-5D, Poly(vinyl alcohol), salts 9003-01-4, Polyacrylic acid 9003-01-4D, Polyacrylic acid, salts 9003-05-8 9003-05-8D, salts 9003-07-0, **Polypropylene** 9003-39-8, Poly(vinylpyrrolidone) 9003-39-8D, Poly(vinylpyrrolidone), salts 9020-32-0 9020-73-9, **Polyethylene** naphthalene dicarboxylate 15438-31-0, Iron +2, uses 15546-75-5, 5,10-Dihydro-5,10-dimethylphenazine 23724-08-5, Pentaqua(isothiocyanato)iron(2+) 25038-59-9, **Polyethylene** terephthalate, uses 25087-26-7, Polymethacrylic acid 25087-26-7D, Polymethacrylic acid, salts 25322-68-3, **Polyethylene** oxide 25322-68-3D, **Polyethylene** oxide, salts 25322-69-4, **Polypropylene** oxide 25322-69-4D, **Polypropylene** oxide, salts 27215-51-6, N,N',N'-Tetramethylphenylenediamine 31366-25-3, Tetrathiafulvalene 62248-00-4, 5,10-Dihydro-5,10-diethylphenazine 68651-46-7, Indigo dye 96638-49-2D, Polyphenylene vinylene, derivs. 126213-51-2, Poly(3,4-ethylenedioxythiophene) 126213-51-2D, Poly(3,4-ethylenedioxythiophene), derivs. 126213-52-3, Poly(3,4-methylenedioxythiophene) 126213-52-3D, Poly(3,4-methylenedioxythiophene), derivs. 136428-63-2, 5,10-Dihydro-5,10-dioctylphenazine 150504-14-6, Poly(3,4-propylenedioxythiophene) 150504-14-6D, Poly(3,4-propylenedioxythiophene), derivs. 175992-45-7 202927-42-2, Poly(3,4-butylenedioxythiophene) 202927-42-2D, derivs.
 RL: DEV (Device component use); USES (Uses)
 (electrochromic devices with indirect addressing via the electrolyte and their prodn. and use)
 IT 50851-57-5
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (polyethylene dioxythiophene doped with; electrochromic devices with indirect addressing via the electrolyte and their prodn. and use)
 IT 175992-45-7
 RL: DEV (Device component use); USES (Uses)
 (electrochromic devices with indirect addressing via the electrolyte and their prodn. and use)
 RN 175992-45-7 HCA
 CN Iron(2+), (1,10-phenanthroline-.kappa.N1,.kappa.N10)- (9CI) (CA INDEX NAME)



L47 ANSWER 4 OF 5 HCA COPYRIGHT 2003 ACS

137:169841 NiCl₂(1,2-Diiminophosphorane) complexes: a new family of readily accessible and tuneable catalysts for oligomerisation of ethylene.
Sauthier, Mathieu; Leca, Francois; Fernando de Souza, Roberto;
Bernardo-Gusmao, Katia; Trevisan Queiroz, Luiz Fernando; Toupet, Loic;
Reau, Regis (Organometalliques et Catalyse, Chimie et Electrochimie
Moleculaires, Institut de Chimie, (CNRS UMR 6509), CNRS - Universite de
Rennes 1, Rennes, 35042, Fr.). New Journal of Chemistry, 26(5), 630-635
(English) 2002. CODEN: NJCHE5. ISSN: 1144-0546. Publisher: Royal
Society of Chemistry.

AB 1,2-Diiminophosphoranes 1-4 featuring either ethane, benzene, cyclohexane or 1,2-diphenylethane carbon backbones act as tightly bonded 1,4-chelating ligands towards NiCl₂, affording the corresponding paramagnetic complexes 5-8 in high yield. X-Ray diffraction studies performed on compds. 5 and 6 revealed that the conformation of the five-membered metallacycle depends on the rigidity of the carbon backbone. For both complexes, the coordination sphere of the Ni atom is a distorted tetrahedron with bond lengths and angles around nickel similar to those obsd. for related Ni(II) (.alpha.-diimine) complexes. Complexes 5-8 are active for ethylene oligomerization under mild reaction conditions (0 .degree.C, 1.1 bar) upon activation by alkylaluminum derivs. (Et₂AlCl or MAO). The nature of the carbon backbone of the 1,2-diiminophosphorane ligands has a profound impact on the selectivity of the catalytic systems. The selectivity for trimers and higher oligomers varies from 10% (pre-catalyst 8) to 81% (pre-catalyst 5). Effects of varying ethylene pressure, temp. and aluminum co-catalyst/nickel ratios with pre-catalyst 6 are reported. Tailoring the reaction parameters has a modest effect on the oligomer distribution but allows quite high catalytic activities to be achieved with turnover frequencies up to 135 .times. 10³ h⁻¹.

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 75, 78

IT 9002-88-4P, **Polyethylene**

RL: SPN (Synthetic preparation); PREP (Preparation)
(oligomeric; prepn., structure, and catalytic activity in ethylene
oligomerization of NiCl₂(1,2-diiminophosphorane) complexes)

IT 55971-44-3P 448193-82-6P 448193-83-7P 448193-84-8P

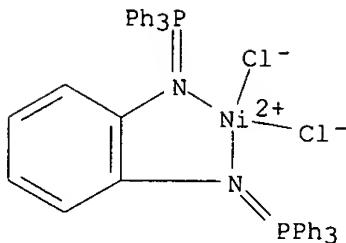
RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation);
PREP (Preparation); USES (Uses)
(prepn., structure, and catalytic activity in ethylene oligomerization
of NiCl₂(1,2-diiminophosphorane) complexes)

IT 448193-82-6P 448193-83-7P

RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation);
PREP (Preparation); USES (Uses)
(prepn., structure, and catalytic activity in ethylene oligomerization
of NiCl₂(1,2-diiminophosphorane) complexes)

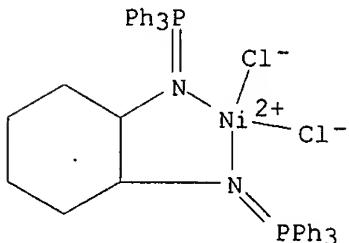
RN 448193-82-6 HCA

CN Nickel, [N,N'-bis(triphenylphosphoranylidene)-1,2-benzenediamine-
.kappa.N,.kappa.N']dichloro-, (T-4)- (9CI) (CA INDEX NAME)



RN 448193-83-7 HCA

CN Nickel, [N,N'-bis(triphenylphosphoranylidene)-1,2-cyclohexanediamine-.kappa.N,.kappa.N']dichloro-, (T-4)- (9CI) (CA INDEX NAME)



L47 ANSWER 5 OF 5 HCA COPYRIGHT 2003 ACS

136:386577 Late transition metal diimide catalysts for **olefin** oligomerization and polymerization. Winslow, Linda N. (Equistar Chemicals, LP, USA). PCT Int. Appl. WO 2002038625 A1 20020516, 18 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-US42616 20011010. PRIORITY: US 2000-711364 20001110.

AB Catalyst systems useful for oligomerizing or **polymg**. **olefins** are disclosed. The catalyst systems comprise an activator and an organometallic complex. The complex includes a late transition metal (Group 8 to 10) and an arom. 1,2-diimine ligand chelated to the metal. The diimine ligands are easily made using Schiff base chem. from readily available arom. 1,2-diamines and an aldehyde or ketone.

IC ICM C08F004-70

ICS C08F010-00; C07C002-08

CC 35-3 (Chemistry of Synthetic High Polymers)

ST transition metal diimide catalyst **olefin** oligomerization polymn

IT Aluminoxanes

RL: CAT (Catalyst use); USES (Uses)
(Me; late transition metal diimide catalysts for **olefin** oligomerization and polymn.)

IT Transition metal complexes

RL: CAT (Catalyst use); USES (Uses)
(diimine; late transition metal diimide catalysts for **olefin** oligomerization and polymn.)

IT Imines

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(dimines, arom., ligand; late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT Imines
RL: CAT (Catalyst use); USES (Uses)
(dimines, transition metal complexes; late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT Polymerization catalysts
(late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT Aluminates
Borates
RL: CAT (Catalyst use); USES (Uses)
(late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT Polymerization catalysts
(oligomerization; late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT 425646-64-6P 425646-67-9P 425646-70-4P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(catalyst; late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT 100-99-2, Triisobutylaluminum, uses
RL: CAT (Catalyst use); USES (Uses)
(late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT 9002-88-4P, Ethylene homopolymer
RL: IMF (Industrial manufacture); PREP (Preparation)
(late transition metal diimide catalysts for olefin oligomerization and polymn.)

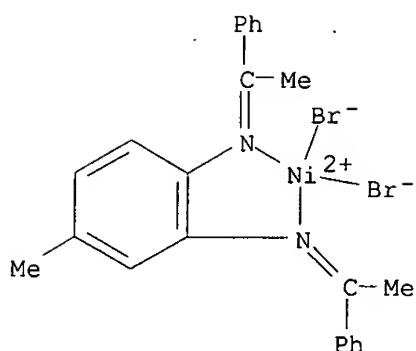
IT 67-64-1, Acetone, reactions 98-86-2, Acetophenone, reactions 100-52-7, Benzaldehyde, reactions 496-72-0, Toluene-3,4-diamine 18346-62-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT 57844-44-7P 425646-62-4P 425646-66-8P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(ligand; late transition metal diimide catalysts for olefin oligomerization and polymn.)

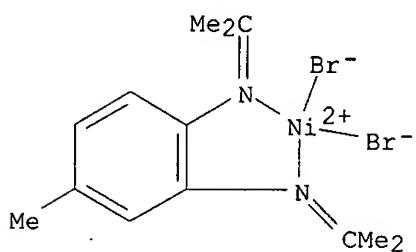
IT 425646-64-6P 425646-67-9P 425646-70-4P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(catalyst; late transition metal diimide catalysts for olefin oligomerization and polymn.)

RN 425646-64-6 HCA

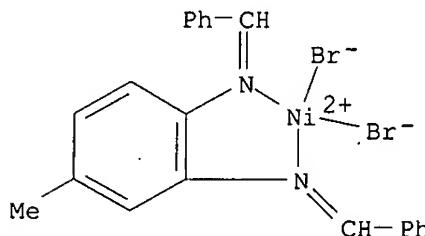
CN Nickel, dibromo[4-methyl-N,N'-bis(1-phenylethylidene)-1,2-benzenediamine-.kappa.N,.kappa.N']- (9CI) (CA INDEX NAME)



RN 425646-67-9 HCA
 CN Nickel, dibromo[4-methyl-N,N'-bis(1-methylethylidene)-1,2-benzenediamine-.kappa.N,.kappa.N']- (9CI) (CA INDEX NAME)



RN 425646-70-4 HCA
 CN Nickel, dibromo[4-methyl-N,N'-bis(phenylmethylene)-1,2-benzenediamine-.kappa.N,.kappa.N']- (9CI) (CA INDEX NAME)

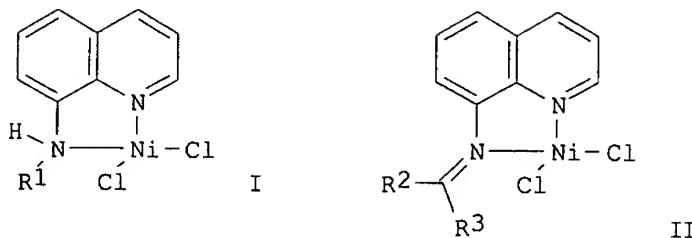


 I text searched (olefin and polymerization) on the records that I had obtained in HCA (Chemical Abstracts) file.

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L43 ANSWER 1 OF 16 HCA COPYRIGHT 2003 ACS
 138:122958 8-aminoquinoline nickel complexes as catalysts for ethylene polymerization. Sun, Wenhua; Li, Zilong; Hu, Youliang; Ma, Zhi; Li, Xiuhua (Inst. of Chemistry, Chinese Academy of Sciences, Peop. Rep. China). Faming Zhanli Shenqing Gongkai Shuomingshu CN 1334143 A 20020206, 11 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 2000-121033 20000717.

GI



AB 8-Aminoquinoline or its derivs. reacts with NiCl₂ to form nickel complexes I or II, which are high active catalysts for ethylene polymn., where R₁ = benzyl, cyclohexenyl, substituted cyclohexenyl, R₂ and R₃ = Me, Ph or camphyl. Thus, ethylene was polymd. in the presence of 5.3 .mu.mol [N-(1-phenylethylidene)-8-quinolinamine]nickel dichloride and 10 mmol MAO for 10 min to produce 8.83 g PE with an activity of 1.0.times.10⁷ g PE/mol Ni.cntdot.h.

IC ICM B01J031-22
ICS B01J031-18

CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 67

ST polymn catalyst aminoquinoline nickel; polyethylene manuf nickel aminoquinoline chloride catalyst

IT Aluminoxanes
RL: CAT (Catalyst use); USES (Uses)
(Me, cocatalyst; nickel catalysts for ethylene polymn .)

IT Polymerization catalysts
(nickel catalysts for ethylene polymn.)

IT Polyolefins
RL: IMF (Industrial manufacture); PREP (Preparation)
(nickel catalysts for ethylene polymn.)

IT 124932-32-7P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(in prepn. of nickel catalysts for ethylene polymn .)

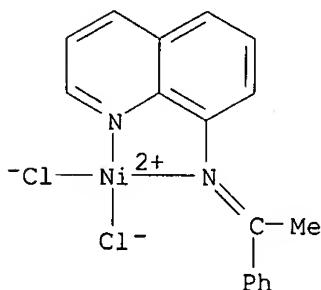
IT 76-22-2, Camphor 98-86-2, Acetophenone, reactions 100-44-7, Benzyl chloride, reactions 108-94-1, Cyclohexanone, reactions 578-66-5, 8-Aminoquinoline 2816-57-1, 2,6-Dimethylcyclohexanone 7791-20-0, Nickel dichloride hexahydrate
RL: RCT (Reactant); RACT (Reactant or reagent)
(in prepn. of nickel catalysts for ethylene polymn .)

IT 104-15-4, p-Methylbenzenesulfonic acid, reactions
RL: RGT (Reagent); RACT (Reactant or reagent)
(in prepn. of nickel catalysts for ethylene polymn .)

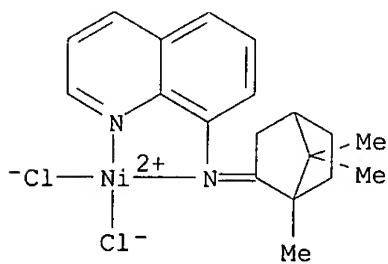
IT 37385-01-6P 488808-82-8P 488808-83-9P 488808-84-0P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(ligand; in prepn. of nickel catalysts for ethylene polymn.)

IT 368890-64-6P 368890-65-7P 368890-66-8P
368890-67-9P 368890-68-0P 368890-69-1P

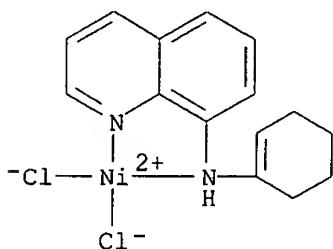
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
 USES (Uses)
 (nickel catalysts for ethylene polymn.)
 IT 9002-88-4P, Polyethylene
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (nickel catalysts for ethylene polymn.)
 IT 368890-64-6P 368890-65-7P 368890-66-8P
 368890-67-9P 368890-68-0P 368890-69-1P
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
 USES (Uses)
 (nickel catalysts for ethylene polymn.)
 RN 368890-64-6 HCA
 CN Nickel, dichloro[N-(1-phenylethylidene)-8-quinolinamine-.kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)



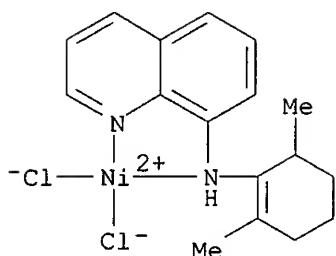
RN 368890-65-7 HCA
 CN Nickel, dichloro[N-(1,7,7-trimethylbicyclo[2.2.1]hept-2-ylidene)-8-quinolinamine-.kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)



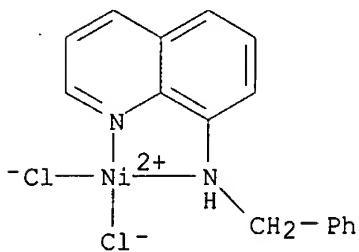
RN 368890-66-8 HCA
 CN Nickel, dichloro(N-1-cyclohexen-1-yl-8-quinolinamine-.kappa.N1,.kappa.N8)- (9CI) (CA INDEX NAME)



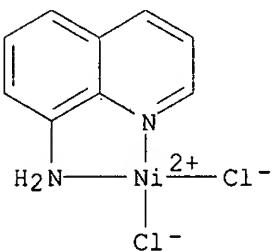
RN 368890-67-9 HCA
 CN Nickel, dichloro[N-(2,6-dimethyl-1-cyclohexen-1-yl)-8-quinolinamine-.kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)



RN 368890-68-0 HCA
 CN Nickel, dichloro[N-(phenylmethyl)-8-quinolinamine-.kappa.N1,.kappa.N8]-
 (9CI) (CA INDEX NAME)



RN 368890-69-1 HCA
 CN Nickel, dichloro(8-quinolinamine-.kappa.N1,.kappa.N8)- (9CI) (CA INDEX
 NAME)



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L43 ANSWER 2 OF 16 HCA COPYRIGHT 2003 ACS

138:90110 Ethylene oligomerization catalyzed by nickel (II) diimine complexes.
 Qian, Ming-Xing; Wang, Mei; Zhang, Yu-Liang; He, Ren (State Key Laboratory
 of Fine Chemicals, Dalian University of Technology, Dalian, 116012, Peop.
 Rep. China). Chinese Journal of Chemistry, 20(7), 676-680 (English) 2002.
 CODEN: CJOCEV. ISSN: 1001-604X. Publisher: Science Press.

AB Ethylene oligomerization has been investigated by using catalyst systems
 composed of nickel(II) diimine complexes (diimine = N,N'-o-phenylene
 bis(salicylideneiminato), N,N'-o-phenylene-bis-benzal,
 N,N'-ethylenebis-benzal) and ethyl-alumininoxane. The main products in
 toluene and at 110-200.degree.C were olefins with low carbon
 nos. (C4-C10). Effects of reaction temp., Al/Ni molar ratio and reaction
 period on both the catalytic activity and product distribution were
 explored. The activity of 1.84 .times. 105 g of oligomer/(molNI .cntdot.

h), with 87.4% of selectivity to C4-C10 olefins, was attained at 200.degree.C in the reaction when a catalyst composed of NiCl₂(Ph-CH=O-NC₆H₄N=CH Ph) and ethyl-aluminoxane was used.

CC 35-3 (Chemistry of Synthetic High Polymers)

IT **Polymerization**

Polymerization catalysts

(oligomerization; ethylene oligomerization catalyzed by nickel (II) diimine complexes)

IT 34877-97-9 36433-88-2 **482587-52-0**

RL: CAT (Catalyst use); USES (Uses)

(ethylene oligomerization catalyzed by nickel (II) diimine complexes)

IT 9002-88-4P, **Polyethylene**

RL: SPN (Synthetic preparation); PREP (Preparation)

(oligomers; ethylene oligomerization catalyzed by nickel (II) diimine complexes)

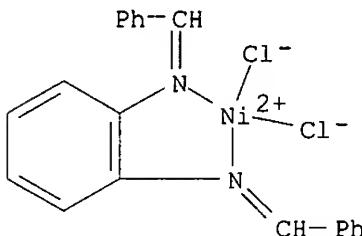
IT **482587-52-0**

RL: CAT (Catalyst use); USES (Uses)

(ethylene oligomerization catalyzed by nickel (II) diimine complexes)

RN 482587-52-0 HCA

CN Nickel, [N,N'-bis(phenylmethylene)-1,2-benzenediamine-.kappa.N,.kappa.N']dichloro- (9CI) (CA INDEX NAME)



L43 ANSWER 3 OF 16 HCA COPYRIGHT 2003 ACS

137:223925 Electrochromic device. Armgarth, Marten; Kugler, Thomas; Berggren, Rolf M.; Remonen, Tommi M. (Swed.). U.S. Pat. Appl. Publ. US 2002126365 A1 20020912, 23 pp. (English): CODEN: USXXCO. APPLICATION: US 2002-91399 20020307. PRIORITY: SE 2001-747 20010307; US 2001-PV276105 20010316.

AB Supported or self-supporting electrochromic devices are described which comprise .gtoreq.1 electrochromic element comprising .gtoreq.1 first material that is elec. conducting in .gtoreq.1 oxidn. state and .gtoreq.1 electrochromic material, wherein the first material and the electrochromic material can be the same or different, .gtoreq.1 layer of a solidified electrolyte which is in direct elec. contact with the electrochromic element, and .gtoreq.2 electrodes, each of which is in direct elec. contact with .gtoreq.1 of the electrolyte layer(s) and not in direct elec. contact with the electrochromic element. Displays and mirrors incorporating such a device, as well as processes for the prodn. of the devices are also described. Methods for addressing an electrochem. active element are also provided. By allowing the electrochromic material to be addressed via the electrolyte, the electrode architecture is not limited by the requirement that the electrodes of the voltage supply be in direct elec. contact with the electrochromic material for electrochromic effects to occur.

IC ICM G02F001-15

ICS G02F001-153

NCL 359265000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 72, 74, 76

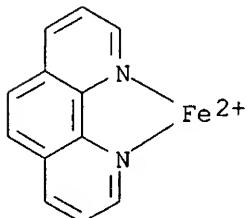
IT Electrochromic devices
 Electrochromic imaging devices
 Gels
 Paper
 (electrochromic devices with indirect addressing via the electrolyte
 and their prodn. and use)

IT 61-73-4, Methylene blue 81-93-6, Phenosafranine 94-10-0,
 p-Ethoxychrysoidine 302-04-5, Thiocyanate anion, uses 366-29-0,
 N,N,N',N'-Tetramethylbenzidine 2650-18-2, Erioglaucine A 9002-88-4,
 Polyethylene 9002-89-5, Poly(vinyl alcohol) 9002-89-5D,
 Poly(vinyl alcohol), salts 9003-01-4, Polyacrylic acid 9003-01-4D,
 Polyacrylic acid, salts 9003-05-8 9003-05-8D, salts 9003-07-0,
 Polypropylene 9003-39-8, Poly(vinylpyrrolidone) 9003-39-8D,
 Poly(vinylpyrrolidone), salts 9020-32-0 9020-73-9,
 Polyethylene naphthalene dicarboxylate 15438-31-0, Iron +2, uses
 15546-75-5, 5,10-Dihydro-5,10-dimethylphenazine 23724-08-5,
 Pentaqua(isothiocyanato)iron(2+) 25038-59-9, Polyethylene
 terephthalate, uses 25087-26-7, Polymethacrylic acid 25087-26-7D,
 Polymethacrylic acid, salts 25322-68-3, Polyethylene oxide
 25322-68-3D, Polyethylene oxide, salts 25322-69-4,
 Polypropylene oxide 25322-69-4D, Polypropylene oxide,
 salts 27215-51-6, N,N,N',N'-Tetramethylphenylenediamine 31366-25-3,
 Tetrathiafulvalene 62248-00-4, 5,10-Dihydro-5,10-diethylphenazine
 68651-46-7, Indigo dye 96638-49-2D, Polyphenylene vinylene, derivs.
 126213-51-2, Poly(3,4-ethylenedioxythiophene) 126213-51-2D,
 Poly(3,4-ethylenedioxythiophene), derivs. 126213-52-3,
 Poly(3,4-methylenedioxythiophene) 126213-52-3D, Poly(3,4-
 methylenedioxythiophene), derivs. 136428-63-2, 5,10-Dihydro-5,10-
 dioctylphenazine 150504-14-6, Poly(3,4-propylenedioxythiophene)
 150504-14-6D, Poly(3,4-propylenedioxythiophene), derivs.
 175992-45-7 202927-42-2, Poly(3,4-butylenedioxythiophene)
 202927-42-2D, derivs.
 RL: DEV (Device component use); USES (Uses)
 (electrochromic devices with indirect addressing via the electrolyte
 and their prodn. and use)

IT 50851-57-5
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (polyethylene dioxythiophene doped with; electrochromic
 devices with indirect addressing via the electrolyte and their prodn.
 and use)

IT 175992-45-7
 RL: DEV (Device component use); USES (Uses)
 (electrochromic devices with indirect addressing via the electrolyte
 and their prodn. and use)

RN 175992-45-7 HCA
 CN Iron(2+), (1,10-phenanthroline-.kappa.N1,.kappa.N10)- (9CI) (CA INDEX
 NAME)



L43 ANSWER 4 OF 16 HCA COPYRIGHT 2003 ACS

137:169841 NiCl₂(1,2-Diiminophosphorane) complexes: a new family of readily accessible and tuneable catalysts for oligomerisation of ethylene. Sauthier, Mathieu; Leca, Francois; Fernando de Souza, Roberto; Bernardo-Gusmao, Katia; Trevisan Queiroz, Luiz Fernando; Toupet, Loic; Reau, Regis (Organometalliques et Catalyse, Chimie et Electrochimie Moleculaires, Institut de Chimie, (CNRS UMR 6509), CNRS - Universite de Rennes 1, Rennes, 35042, Fr.). New Journal of Chemistry, 26(5), 630-635 (English) 2002. CODEN: NJCHE5. ISSN: 1144-0546. Publisher: Royal Society of Chemistry.

AB 1,2-Diiminophosphoranes 1-4 featuring either ethane, benzene, cyclohexane or 1,2-diphenylethane carbon backbones act as tightly bonded 1,4-chelating ligands towards NiCl₂, affording the corresponding paramagnetic complexes 5-8 in high yield. X-Ray diffraction studies performed on compds. 5 and 6 revealed that the conformation of the five-membered metallacycle depends on the rigidity of the carbon backbone. For both complexes, the coordination sphere of the Ni atom is a distorted tetrahedron with bond lengths and angles around nickel similar to those obsd. for related Ni(II)(.alpha.-diimine) complexes. Complexes 5-8 are active for ethylene oligomerization under mild reaction conditions (0 .degree.C, 1.1 bar) upon activation by alkylaluminum derivs. (Et₂AlCl or MAO). The nature of the carbon backbone of the 1,2-diiminophosphorane ligands has a profound impact on the selectivity of the catalytic systems. The selectivity for trimers and higher oligomers varies from 10% (pre-catalyst 8) to 81% (pre-catalyst 5). Effects of varying ethylene pressure, temp. and aluminum co-catalyst/nickel ratios with pre-catalyst 6 are reported. Tailoring the reaction parameters has a modest effect on the oligomer distribution but allows quite high catalytic activities to be achieved with turnover frequencies up to 135 .times. 10³ h⁻¹.

CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 75, 78

IT **Polymerization catalysts**
(oligomerization; prepn., structure, and catalytic activity in ethylene oligomerization of NiCl₂(1,2-diiminophosphorane) complexes)

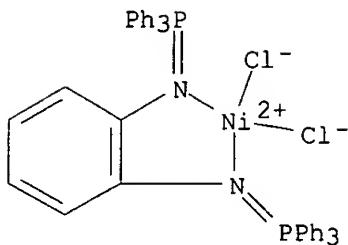
IT 9002-88-4P, **Polyethylene**
RL: SPN (Synthetic preparation); PREP (Preparation)
(oligomeric; prepn., structure, and catalytic activity in ethylene oligomerization of NiCl₂(1,2-diiminophosphorane) complexes)

IT 55971-44-3P 448193-82-6P 448193-83-7P 448193-84-8P
RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation);
PREP (Preparation); USES (Uses)
(prepn., structure, and catalytic activity in ethylene oligomerization of NiCl₂(1,2-diiminophosphorane) complexes)

IT 448193-82-6P 448193-83-7P
RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation);
PREP (Preparation); USES (Uses)
(prepn., structure, and catalytic activity in ethylene oligomerization of NiCl₂(1,2-diiminophosphorane) complexes)

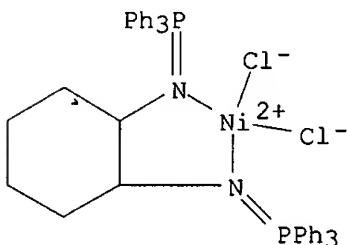
RN 448193-82-6 HCA

CN Nickel, [N,N'-bis(triphenylphosphoranylidene)-1,2-benzenediamine-.kappa.N,.kappa.N']dichloro-, (T-4)- (9CI) (CA INDEX NAME)



RN 448193-83-7 HCA

CN Nickel, [N,N'-bis(triphenylphosphoranylidene)-1,2-cyclohexanediamine-.kappa.N,.kappa.N']dichloro-, (T-4)- (9CI) (CA INDEX NAME)



L43 ANSWER 5 OF 16 HCA COPYRIGHT 2003 ACS

136:386577 Late transition metal diimide catalysts for **olefin**

oligomerization and **polymerization**. Winslow, Linda N. (Equistar Chemicals, LP, USA). PCT Int. Appl. WO 2002038625 A1 20020516, 18 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-US42616 20011010. PRIORITY: US 2000-711364 20001110.

AB Catalyst systems useful for oligomerizing or **polymerization**.

olefins are disclosed. The catalyst systems comprise an activator and an organometallic complex. The complex includes a late transition metal (Group 8 to 10) and an arom. 1,2-diimine ligand chelated to the metal. The diimine ligands are easily made using Schiff base chem. from readily available arom. 1,2-diamines and an aldehyde or ketone.

IC ICM C08F004-70

ICS C08F010-00; C07C002-08

CC 35-3 (Chemistry of Synthetic High Polymers)

ST transition metal diimide catalyst **olefin** oligomerization**polymer**

IT Aluminoxanes

RL: CAT (Catalyst use); USES (Uses)
(Me; late transition metal diimide catalysts for **olefin** oligomerization and **polymer**.)

IT Transition metal complexes

RL: CAT (Catalyst use); USES (Uses)
(diimine; late transition metal diimide catalysts for **olefin** oligomerization and **polymer**.)

IT Imines
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
 (diimines, arom., ligand; late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT Imines
 RL: CAT (Catalyst use); USES (Uses)
 (diimines, transition metal complexes; late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT **Polymerization catalysts**
 (late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT Aluminates
 Borates
 RL: CAT (Catalyst use); USES (Uses)
 (late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT **Polymerization catalysts**
 (oligomerization; late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT 425646-64-6P 425646-67-9P 425646-70-4P
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
 (catalyst; late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT 100-99-2, Triisobutylaluminum, uses
 RL: CAT (Catalyst use); USES (Uses)
 (late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT 9002-88-4P, Ethylene homopolymer
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (late transition metal diimide catalysts for olefin oligomerization and polymn.)

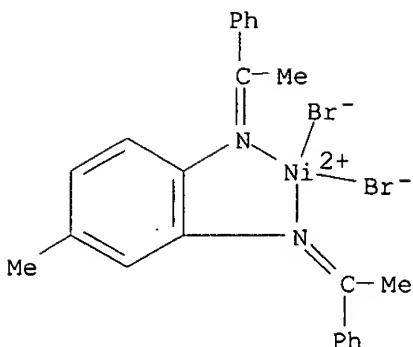
IT 67-64-1, Acetone, reactions 98-86-2, Acetophenone, reactions 100-52-7,
 Benzaldehyde, reactions 496-72-0, Toluene-3,4-diamine 18346-62-8
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT 57844-44-7P 425646-62-4P 425646-66-8P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
 (ligand; late transition metal diimide catalysts for olefin oligomerization and polymn.)

IT 425646-64-6P 425646-67-9P 425646-70-4P
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
 (catalyst; late transition metal diimide catalysts for olefin oligomerization and polymn.)

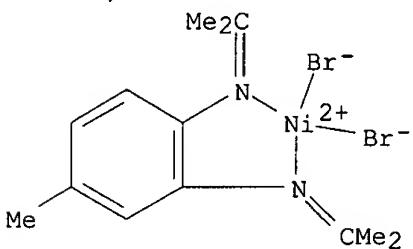
RN 425646-64-6 HCA

CN Nickel, dibromo[4-methyl-N,N'-bis(1-phenylethylidene)-1,2-benzenediamine-.kappa.N,.kappa.N']- (9CI) (CA INDEX NAME)



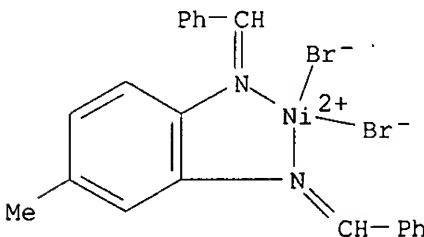
RN 425646-67-9 HCA

CN Nickel, dibromo[4-methyl-N,N'-bis(1-methylethylidene)-1,2-benzenediamine-.kappa.N, .kappa.N']- (9CI) (CA INDEX NAME)



RN 425646-70-4 HCA

CN Nickel, dibromo[4-methyl-N,N'-bis(phenylmethylen)-1,2-benzenediamine-.kappa.N, .kappa.N']- (9CI) (CA INDEX NAME)



L43 ANSWER 6 OF 16 HCA COPYRIGHT 2003 ACS

136:135086 Influence of the P, O-bidentate ligand on ethylene oligomerization catalyzed by iron complexes. Wang, Mei; Yu, Xiao-Min; Qian, Ming-Xing; He, Ren (State Key Laboratory of Fine Chemicals, Dalian University of Technology, Dalian, 116012, Peop. Rep. China). Chemical Research in Chinese Universities, 17(2), 228-232 (English) 2001. CODEN: CRCUED. ISSN: 1005-9040. Publisher: Higher Education Press.

AB The effect of the phosphorus-oxygen chelate on the catalytic activity and selectivity of the diimine iron catalyst in ethylene oligomerization was evaluated. The iron complexes catalysts, $\text{FeCl}_2\text{PhCH}=\text{NC}_6\text{H}_4\text{O}-\text{N}=\text{CHPh}$ and $\text{FeCl}_2\text{PhCH}=\text{NCH}_2\text{CH}_2\text{N}=\text{CHPh}$ in combination with ethylaluminoxane (EAO) as cocatalyst, were used for the study. Precursors were prep'd. in situ by the refluxing diimine iron complex 1 and 2, with 1 mol $\text{Ph}_2\text{PCH}_2\text{COONa}$ in toluene for 1 h and a certain amt. of EAO was added after cooling of the soln. at room temp. Both catalyst 1 and 2 with EAO showed moderate

activity for ethylene oligomerization with high selectivities for C4-C10 **olefins**. However, the addn. of the phosphorus-oxygen chelate ligand had no significant effect on the catalytic activities of the two catalysts, but did affect the selectivities for low-carbon **olefins** and linear **.alpha.-olefins** in ethylene oligomerization. The ortho-position hindrance of the ligands was not the predominant factor that control the selectivity for forming the linear products in the **ethylene polymn.** and oligomerization.

CC 35-4 (Chemistry of Synthetic High Polymers)
IT **Polymerization**

Polymerization catalysts

(oligomerization; effect of P, O-bidentate ligand on ethylene oligomerization catalyzed by iron complexes)

IT 97-93-8, Triethylaluminum, uses 314084-21-4 314084-22-5

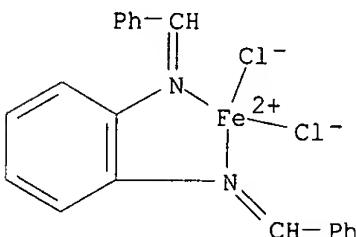
RL: CAT (Catalyst use); USES (Uses)
(effect of P, O-bidentate ligand on ethylene oligomerization catalyzed by iron complexes)

IT 314084-21-4

RL: CAT (Catalyst use); USES (Uses)
(effect of P, O-bidentate ligand on ethylene oligomerization catalyzed by iron complexes)

RN 314084-21-4 HCA

CN Iron, [N,N'-bis(phenylmethylene)-1,2-benzenediamine-.kappa.N,.kappa.N']dichloro- (9CI) (CA INDEX NAME)



L43 ANSWER 7 OF 16 HCA COPYRIGHT 2003 ACS

135:318760 Ethylene oligomerization promoted by nickel complexes with 8-iminoquinoline derivatives. Li, Zi Long; Sun, Wen Hua; Ma, Zhi; Hu, You Liang; Shao, Chang Xing (State Key Laboratory of Engineering Plastics and The Center for Molecular Sciences, Institute of Chemistry, The Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China). Chinese Chemical Letters, 12(8), 691-692 (English) 2001. CODEN: CCLEE7. ISSN: 1001-8417. Publisher: Chinese Chemical Society.

AB A series of 8-iminoquinoline deriv. - nickel complexes were synthesized by condensation of ketones and primary amines. The complexes showed high activity when used as catalysts in ethylene oligomerization. The oligomerization products are **olefins** with 90-99% of C8 and C10 chains, and **.alpha.-olefin** yields of less than 40%.

CC 35-3 (Chemistry of Synthetic High Polymers)

ST Section cross-reference(s): 67, 78

nickel iminoquinoline deriv complex prep catalyst activity; ethylene oligomerization nickel iminoquinoline deriv complex catalyst; alfa **olefin** yield ethylene oligomerization nickel iminoquinoline catalyst

IT **Polymerization**

(oligomerization; prep. and catalytic activity of nickel-iminoquinoline deriv. catalysts in ethylene oligomerization)

IT **Polymerization catalysts**

(prep. and catalytic activity of nickel-iminoquinoline deriv.

catalysts in ethylene oligomerization)

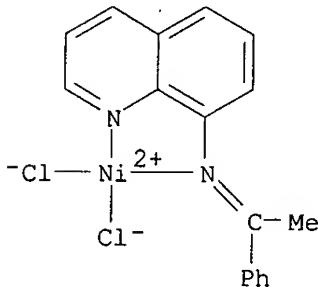
IT 9002-88-4P, **Polyethylene**
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (oligomeric; prep. and catalytic activity of nickel-iminoquinoline
 deriv. catalysts in ethylene oligomerization)

IT 368890-64-6P 368890-65-7P 368890-66-8P
 368890-67-9P 368890-68-0P 368890-69-1P
 RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP
 (Preparation); USES (Uses)
 (prep. and catalytic activity of nickel-iminoquinoline deriv.
 catalysts in ethylene oligomerization)

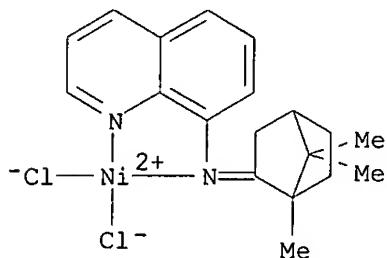
IT 368890-64-6P 368890-65-7P 368890-66-8P
 368890-67-9P 368890-68-0P 368890-69-1P
 RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP
 (Preparation); USES (Uses)
 (prep. and catalytic activity of nickel-iminoquinoline deriv.
 catalysts in ethylene oligomerization)

RN 368890-64-6 HCA

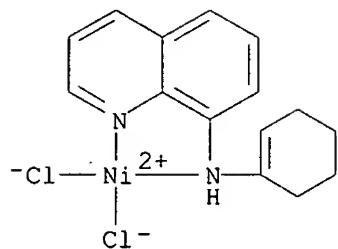
CN Nickel, dichloro[N-(1-phenylethylidene)-8-quinolinamine-
 .kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)



RN 368890-65-7 HCA
 CN Nickel, dichloro[N-(1,7,7-trimethylbicyclo[2.2.1]hept-2-ylidene)-8-
 quinolinamine-.kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)

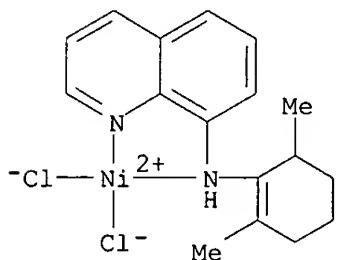


RN 368890-66-8 HCA
 CN Nickel, dichloro(N-1-cyclohexen-1-yl-8-quinolinamine-.kappa.N1,.kappa.N8)-
 (9CI) (CA INDEX NAME)



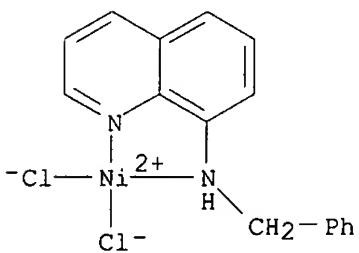
RN 368890-67-9 HCA

CN Nickel, dichloro[N-(2,6-dimethyl-1-cyclohexen-1-yl)-8-quinolinamine-.kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)



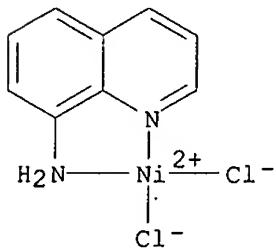
RN 368890-68-0 HCA

CN Nickel, dichloro[N-(phenylmethyl)-8-quinolinamine-.kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)



RN 368890-69-1 HCA

CN Nickel, dichloro(8-quinolinamine-.kappa.N1,.kappa.N8)- (9CI) (CA INDEX NAME)



L43 ANSWER 8 OF 16 HCA COPYRIGHT 2003 ACS
 134:367234 Ethylene oligomerization by cobalt(II) diimine complexes/EAO.

Qian, M.; Wang, M.; Zhou, B.; He, R. (Open Laboratory of Comprehensive Utilization for Carbon Resources, Dalian University of Technology, Dalian, 116012, Peop. Rep. China). Applied Catalysis, A: General, 209(1,2), 11-15 (English) 2001. CODEN: ACAGE4. ISSN: 0926-860X. Publisher: Elsevier Science B.V..

AB The catalytic properties of a series of Co(II) diimine complexes $\text{Co}(\text{N and N})\text{Cl}_2$ [A: $\text{N and N} = \text{N,N}'\text{-o-phenylenebisbenzal}$; B: $\text{N and N} = \text{N,N}'\text{-ethylenebisbenzal}$; C: $\text{N and N} = \text{N,N}'\text{-o-phenylenebis(diphenylmethylen)}$] in combination with ethylaluminoxane (EAO) as cocatalyst for ethylene oligomerization were investigated. Treatment of the cobalt .cntdot.(II) diimine complexes with EAO in toluene generated active catalysts *in situ* that are capable of oligomerizing ethylene to low-carbon olefins. The catalytic activity and product distribution were affected by reaction conditions, such as reaction temp., the ratios of Al/Co and the reaction time. The activity of 1.30×10^5 g oligomers/mol Co.cntdot.h for the catalytic system of CoCl_2 ($\text{Ph}_2\text{C:O-NC}_6\text{H}_4\text{N:CPH}_2$) with EAO at 200.degree. was obsd., with the selectivity of 94.4% to C4-10 olefins and 87.2% to C4-10 linear .alpha.-olefins.

CC 35-3 (Chemistry of Synthetic High Polymers)

IT **Polymerization catalysts**
(oligomerization; ethylene oligomerization by cobalt(II) diimine complexes/ethylaluminoxanes)

IT 334979-48-5 340187-24-8 340187-25-9

RL: CAT (Catalyst use); USES (Uses)
(ethylene oligomerization by cobalt(II) diimine complexes/ethylaluminoxanes)

IT 9002-88-4P, **Polyethylene**

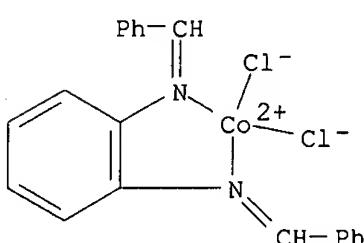
RL: SPN (Synthetic preparation); PREP (Preparation)
(ethylene oligomerization by cobalt(II) diimine complexes/ethylaluminoxanes)

IT 334979-48-5 340187-25-9

RL: CAT (Catalyst use); USES (Uses)
(ethylene oligomerization by cobalt(II) diimine complexes/ethylaluminoxanes)

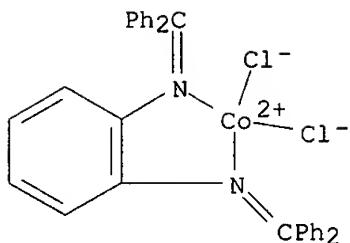
RN 334979-48-5 HCA

CN Cobalt, [N,N'-bis(phenylmethylen)-1,2-benzenediamine-.kappa.N,.kappa.N']dichloro-, (T-4)- (9CI) (CA INDEX NAME)



RN 340187-25-9 HCA

CN Cobalt, [N,N'-bis(diphenylmethylen)-1,2-benzenediamine-.kappa.N,.kappa.N']dichloro- (9CI) (CA INDEX NAME)



L43 ANSWER 9 OF 16 HCA COPYRIGHT 2003 ACS

134:178877 Four-coordinated bipyridine complexes of nickel for ethene polymerization - the role of ligand structure. Kinnunen, T.-J. J.; Haukka, M.; Pakkanen, T. T.; Pakkanen, T. A. (PO Box 111, Department of Chemistry, University of Joensuu, Joensuu, FIN-80101, Finland). Journal of Organometallic Chemistry, 613(2), 257-262 (English) 2000. CODEN: JORCAI. ISSN: 0022-328X. Publisher: Elsevier Science S.A..

AB Four-coordinated bipyridine complexes of nickel, (2,2'-bipyridine)nickel dibromide, [6,6'-bis(methoxycarbonyl)-2,2'-bipyridine]nickel dibromide (I), (2,2'-biquinoline)nickel dibromide (II), and (2,9-dimethyl-4,7-diphenyl-1,10-phenanthroline)nickel dibromide (III), were synthesized. Single crystal X-ray structures were detd. for compds. I and III. Both structures were monoclinic with space group P21/c. For I, a 8.4289(7), b 13.5013(14), c 14.7341(15) .ANG., Z = 4. For complex III, a 12.8143(4), b 22.5687(8), c 7.8172(2) .ANG., Z = 4. Catalytic activities of the complexes were studied in ethylene polymn. using Me aluminoxane as a cocatalyst. Complexes I and II showed a modest activity producing high-d. polyethylene. Polymn. temp. had a clear effect on the activities of the complexes. Reactions carried at 50.degree.C yielded more polyethylene than reactions at 30 or 70.degree.. The effect of ligand structure on catalytic activity was also obsd., the bulky substituents increased activity.

CC 35-3 (Chemistry of Synthetic High Polymers)

ST Section cross-reference(s): 67, 75, 78

IT nickel bipyridine complex prepn structure catalyst polymn ethylene; crystal structure nickel bipyridine phenanthroline bromo

IT Aluminoxanes

RL: CAT (Catalyst use); USES (Uses)
(Me; in nickel bipyridine bromo complexes for polymn. of ethylene)

IT Crystal structure

Molecular structure
(of nickel bipyridine bromo complexes prep'd. as catalysts for polymn. of ethylene)

IT Polymerization catalysts
(prep'n. of nickel bipyridine bromo complexes for polymn. of ethylene)

IT 9002-88-4P, Polyethylene

RL: SPN (Synthetic preparation); PREP (Preparation)
(high-d.; catalytic activity of nickel bipyridine complexes for prep'n. of)

IT 14950-13-1P, (2,2'-Biquinoline)nickel dibromide 46389-47-3P,
(2,2'-Bipyridine)nickel dibromide

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(prep'n. and ethylene-polymg. catalytic activity of nickel bipyridine complexes)

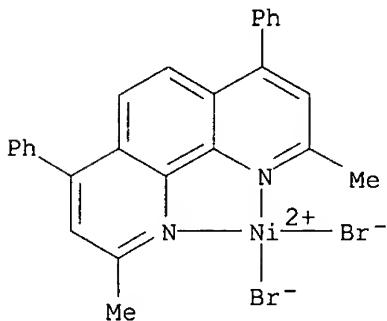
IT 326822-01-9P, [6,6'-Bis(methoxycarbonyl)-2,2'-bipyridine]nickel dibromide
 326822-02-0P, (2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline)nickel dibromide
 RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation);
 PREP (Preparation); USES (Uses)
 (prepn., crystal structure and ethylene-polymg.
 catalytic activity of nickel bipyridine complexes)

IT 119-91-5, 2,2'-Biquinoline 4733-39-5, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline 7789-49-3 28923-39-9 142593-07-5
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (starting material; prepn. of nickel bipyridine complexes for polymn. of ethylene)

IT 326822-02-0P, (2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline)nickel dibromide
 RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation);
 PREP (Preparation); USES (Uses)
 (prepn., crystal structure and ethylene-polymg.
 catalytic activity of nickel bipyridine complexes)

RN 326822-02-0 HCA

CN Nickel, dibromo(2,9-dimethyl-4,7-diphenyl-1,10-phenanthroline-.kappa.N1,.kappa.N10)-, (T-4)- (9CI) (CA INDEX NAME)



L43 ANSWER 10 OF 16 HCA COPYRIGHT 2003 ACS

134:56410 Ethylene oligomerization by diimine iron(II) complexes/EAO.
 Mingxing, Q.; Mei, W.; Ren, H. (Open Laboratory of Comprehensive Utilization for Carbon Resources, Dalian University of Technology, Dalian, 116012, Peop. Rep. China). Journal of Molecular Catalysis A: Chemical, 160(2), 243-247 (English) 2000. CODEN: JMCCF2. ISSN: 1381-1169.
 Publisher: Elsevier Science B.V..

AB The catalytic properties of a series of Fe(II) diimine complexes (diimine = N,N'-o-phenylenebis(salicylideneaminato), N,N'-ethylenebis(salicylideneaminato), N,N'-o-phenylenebisbenzal, N,N'-ethylenebisbenzal) in combination with ethylalumininoxane (EAO) for ethylene oligomerization have been investigated. Treatment of the iron(II) complexes with EAO in toluene generates active catalytic systems in situ that oligomerize ethylene to low-carbon olefins. The effects of reaction temp., ratios of Al/Fe and reaction periods on catalytic activity and product distribution have been studied. The activity of complex FeCl₂(PhCH:N-o-C₆H₄N:CHPh) with EAO at 200.degree.C is 1.35.times.10⁵ g oligomers/mol Fe.cntdot.h, and the selectivity of C₄-10 olefins is 84.8%.

CC 23-2 (Aliphatic Compounds)
 Section cross-reference(s): 35

IT Polymerization
 Polymerization catalysts
 (oligomerization; ethylene oligomerization by diimine iron

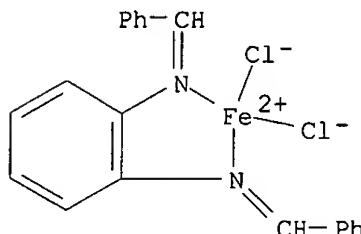
complexes/ethyl aluminoxanes)

IT 14167-12-5, [N,N'-Ethylenebis(salicylideneaminato)]iron 16828-80-1
314084-21-4 314084-22-5
 RL: CAT (Catalyst use); USES (Uses)
 (ethylene oligomerization by diimine iron complexes/ethyl aluminoxanes)

IT **314084-21-4**
 RL: CAT (Catalyst use); USES (Uses)
 (ethylene oligomerization by diimine iron complexes/ethyl aluminoxanes)

RN 314084-21-4 HCA

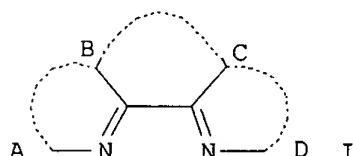
CN Iron, [N,N'-bis(phenylmethlene)-1,2-benzenediamine-.kappa.N,.kappa.N']dichloro- (9CI) (CA INDEX NAME)



L43 ANSWER 11 OF 16 HCA COPYRIGHT 2003 ACS

134:29799 **Polymerization catalysts and highly stereospecific polyolefins** manufactured therewith. Tanaka, Hiromitsu; Kin, Yao; Nakano, Mitsuru; Usuki, Arimitsu (Toyota Central Research and Development Laboratories, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2000344815 A2 20001212, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-154050 19990601.

GI



AB The catalysts contain metal atoms and ligands I having planar structure and ≥ 1 ring structure formed by linking positions at A and B, B and C, and/or C and D, where A and D have substituents. Thus, ethylene was polymerd. in the presence of 2,9-diphenyl-1,10-phenanthroline nickel dibromide to give linear polyethylene with mol. wt. 30,000.

IC ICM C08F004-602
 ICS C08F010-00

CC 35-3 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 29, 67

ST stereospecific polyolefin polyethylene catalyst
 diphenylphenanthroline nickel; phenanthroline nickel complex
 olefin polymn catalyst

IT **Polyolefins**
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (polymn. catalysts for prepn. of highly stereospecific polyolefins)

IT **Polymerization catalysts**
 (stereospecific; polymn. catalysts for prepn. of highly

stereospecific polyolefins)

IT 312539-47-2P 312539-49-4P 312539-51-8P
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
 USES (Uses)
 (catalyst; polymn. catalysts for prepn. of highly
 stereospecific polyolefins)

IT 32534-86-4P, Methyl methacrylate-propylene copolymer
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (highly isotactic; polymn. catalysts for prepn. of highly
 stereospecific polyolefins)

IT 9002-88-4P, Polyethylene 25085-53-4P, Isotactic
polypropylene
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (polymn. catalysts for prepn. of highly stereospecific
 polyolefins)

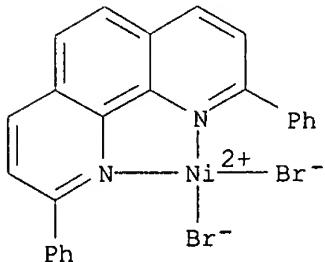
IT 25677-69-4P 163704-47-0P 312539-48-3P 312539-50-7P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
 (Reactant or reagent)
 (polymn. catalysts for prepn. of highly stereospecific
 polyolefins)

IT 66-71-7, 1,10-Phenanthroline 591-51-5, Phenyllithium 24544-04-5,
 2,6-Diisopropylaniline 28923-39-9 65232-56-6, Benzene,
 2-bromo-1-methyl-3-(1-methylethyl)-
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (polymn. catalysts for prepn. of highly stereospecific
 polyolefins)

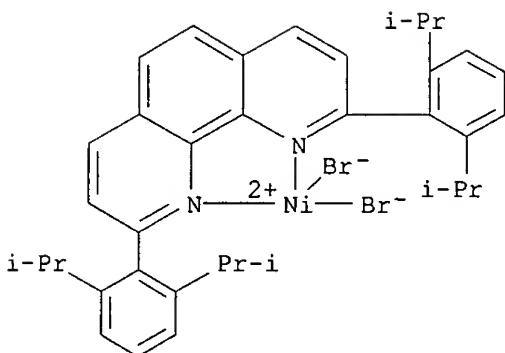
IT 312539-47-2P 312539-49-4P 312539-51-8P
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
 USES (Uses)
 (catalyst; polymn. catalysts for prepn. of highly
 stereospecific polyolefins)

RN 312539-47-2 HCA

CN Nickel, dibromo(2,9-diphenyl-1,10-phenanthroline-.kappa.N1,.kappa.N10)-
 (9CI) (CA INDEX NAME)

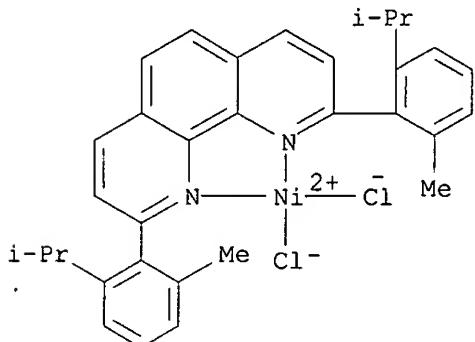


RN 312539-49-4 HCA
 CN Nickel, [2,9-bis(2,6-bis(1-methylethyl)phenyl)-1,10-phenanthroline-.kappa.N1,.kappa.N10]dibromo- (9CI) (CA INDEX NAME)



RN 312539-51-8 HCA

CN Nickel, [2,9-bis[2-methyl-6-(1-methylethyl)phenyl]-1,10-phenanthroline-.kappa.N1,.kappa.N10]dichloro- (9CI) (CA INDEX NAME)



L43 ANSWER 12 OF 16 HCA COPYRIGHT 2003 ACS

132:294051 Synthesis of Branched Polyethylene Using

(.alpha.-Diimine)nickel(II) Catalysts: Influence of Temperature, Ethylene Pressure, and Ligand Structure on Polymer Properties. Gates, Derek P.; Svejda, Steven A.; Onate, Enrique; Killian, Christopher M.; Johnson, Lynda K.; White, Peter S.; Brookhart, Maurice (Department of Chemistry, University of North Carolina at Chapel Hill, Chapel Hill, NC, 27599-3290, USA). *Macromolecules*, 33(7), 2320-2334 (English) 2000. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB Detailed investigations of the polymn. of ethylene by (.alpha.-diimine)nickel(II) catalysts are reported. Effects of structural variations of the diimine ligand on catalyst activities, polymer mol. wts., and polymer microstructure are described. The pre-catalysts employed were [{(2,6-RR'C6H3)-N:C(Nap)-C(Nap):N-(2,6-RR'C6H3)}NiBr2] (Nap = 1,8-naphthdiyl) (4a, R = CF3, R' = H; 4b, R = CF3, R' = CH3; 4c, R = C6F5, R' = H; 4d, R = C6F5, R' = CH3; 4e, R = CH3, R' = H; 4f, R = R' = CH3; 4g, R = R' = CH(CH3)2), [{(2,6-C6H3(i-Pr)2)-N:C(CH2CH2CH2CH2)C:N-(2,6-C6H3(i-Pr)2)}NiBr2] (5), and [{(2,6-C6H3(i-Pr)2)-N:C(Et)C(Me):N-(2,6-C6H3(i-Pr)2)}NiBr2] (6). Active polymn. catalysts were formed in situ by combination of 4-6 with modified methylaluminoxane. In general, as the bulk and no. of ortho substituents increase, polymer mol. wts., turnover frequencies and extent of branching in the polyethylenes all increase. Effects of varying ethylene pressure and temp. on polymns. are also reported. The degree of branching in the polymers rapidly decreases with increasing ethylene

pressure but mol. wts. are not markedly affected. Temp. increases result in more extensive branching and moderate redns. in mol. wts. Catalyst productivity decreases above 60.degree. due to catalyst deactivation.

CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 75, 78

ST polyethylene branched diiminеникель catalyst; nickel diimine catalyst prepн structure; crystal structure nickel diimine bromo catalyst

IT **Polymerization catalysts**
(synthesis of branched polyethylene using (.alpha.-diimine)nickel(II) catalysts)

IT 264927-08-4P
RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(crystal structure; synthesis of branched polyethylene using (.alpha.-diimine)nickel(II) catalysts)

IT 264927-11-9P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(crystal structure; synthesis of branched polyethylene using (.alpha.-diimine)nickel(II) catalysts)

IT 82-86-0, Acenaphthenequinone 88-17-5 95-53-4, o-Toluidine, reactions 600-14-6, 2,3-Pantanedione 765-87-7, 1,2-Cyclohexanenedione 827-15-6
24544-04-5 88301-98-8 147439-11-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(for catalyst prepн; synthesis of branched polyethylene using (.alpha.-diimine)nickel(II) catalysts)

IT 210295-15-1P 264926-99-0P 264927-00-6P 264927-01-7P 264927-04-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(for catalyst prepн; synthesis of branched polyethylene using (.alpha.-diimine)nickel(II) catalysts)

IT 156398-96-8 156398-97-9 163893-70-7
RL: CAT (Catalyst use); USES (Uses)
(synthesis of branched polyethylene using (.alpha.-diimine)nickel(II) catalysts)

IT 264927-05-1P 264927-06-2P 264927-07-3P 264927-09-5P
264927-10-8P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis of branched polyethylene using (.alpha.-diimine)nickel(II) catalysts)

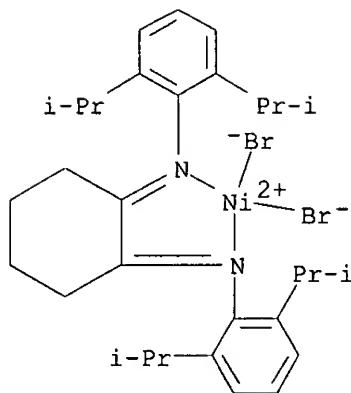
IT 264927-02-8P 264927-03-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis of branched polyethylene using (.alpha.-diimine)nickel(II) catalysts)

IT 9002-88-4P, **Polyethylene**
RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of branched polyethylene using (.alpha.-diimine)nickel(II) catalysts)

IT **264927-09-5P**
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis of branched polyethylene using (.alpha.-diimine)nickel(II) catalysts)

RN 264927-09-5 HCA

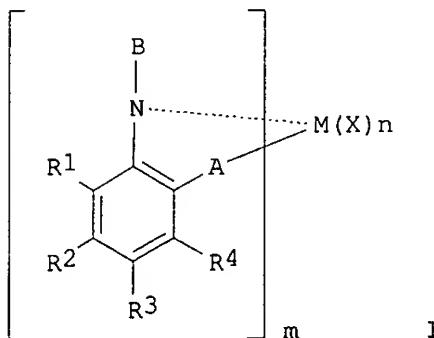
CN Nickel, dibromo[N,N'-1,2-cyclohexanediylidenebis[2,6-bis(1-methylethyl)benzenamine-.kappa.N]]- (9CI) (CA INDEX NAME)



L43 ANSWER 13 OF 16 HCA COPYRIGHT 2003 ACS

131:102661 Transition metal compounds useful as **olefin polymerization catalysts** and **polymerization method** therewith. Matsui, Shigekazu; Tsuru, Kazutaka; Nitahara, Masatoshi; Mitani, Makoto; Fujita, Terunori (Mitsui Chemicals Inc., Japan). Jpn. Kokai Tokkyo Koho JP 11199592 A2 19990727 Heisei, 44 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-200115 19980715. PRIORITY: JP 1997-193516 19970718; JP 1997-239632 19970904; JP 1997-308398 19971111.

GI



AB **Olefin polymn.** catalysts comprise (A) transition metal compds. (I) and (B) org. metal compds., organoaluminum oxy compds. and/or compds. capable to form ion pairs by reaction with I, wherein M = group 3-11 transition metal; m = 1-6; A = O, S, Se, OR5, NR5, NR5R6, :CR7R8; B = R9, R10, :CR11R12; R1-12 = H, halogen, hydrocarbyl, heterocyclic compd. residue, group contg. O, N, B, S, P, Si, Ge, or Sn; n = no. satisfying valence of M; X = H, halogen, hydrocarbyl, group contg. O, S, N, B, Al, P, halogen, Si, Ge, or Sn, or heterocyclic compd. residue. Thus, ethylene was **polymd.** in the presence of Me aluminoxane and I prep'd. from **.alpha.-naphthylaldehyde**, **o-aminophenol**, and **titanium chloride** to give a **polyethylene** with **polymn.** activity 12 g/mmol-Ti-h.

IC ICM C07F007-28
ICS C07F007-00; C07F017-00; C08F004-642; C08F010-00

CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 67

ST transition metal compd **olefin polymn** catalyst;

ethylene polymn methyl aluminoxane cocatalyst;
polyethylene prepn coordination polymn catalyst;
naphthylaldehyde aminophenol titanium chloride catalyst prepn

IT Aluminoxanes
RL: CAT (Catalyst use); USES (Uses)
(Me, cocatalysts; prepn. of polyolefins using transition metal polym. catalysts)

IT Polymerization catalysts
(coordination; prepn. of transition metal olefin polym. catalysts)

IT Polyolefins
RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of polyolefins using transition metal polym. catalysts)

IT Transition metal compounds
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(prepn. of transition metal olefin polym. catalysts)

IT 100-99-2, uses 136040-19-2, Triphenylcarbenium tetrakis(pentafluorophenyl)borate
RL: CAT (Catalyst use); USES (Uses)
(cocatalyst; prepn. of polyolefins using transition metal polym. catalysts)

IT 1643-39-6P, 2-Amino-4,6-di-tert-butylphenol 20039-94-5P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(in ligand prepn.; prepn. of transition metal olefin polym. catalysts)

IT 66-77-3, .alpha.-Naphthylaldehyde 75-77-4, reactions 95-55-6,
o-Aminophenol 96-76-4, 2,4-Di-tert-butylphenol 98-59-9,
p-Toluenesulfonyl chloride 100-52-7, Benzaldehyde, reactions 578-66-5,
8-Aminoquinoline 5036-87-3, 2-Methyl-7-aminobenzothiazole 5779-94-2,
2,5-Dimethylbenzaldehyde
RL: RCT (Reactant); RACT (Reactant or reagent)
(in ligand prepn.; prepn. of transition metal olefin polym. catalysts)

IT 3159-42-0P . 5932-25-2P 231283-96-8P 231283-97-9P 231284-00-7P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(ligand; prepn. of transition metal olefin polym. catalysts)

IT 9002-88-4P, Polyethylene
RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of polyolefins using transition metal polym. catalysts)

IT 231283-98-0P 231283-99-1P 231298-29-6P 231298-30-9P 231298-31-0P
231298-32-1P 231298-33-2P 231298-34-3P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(prepn. of transition metal olefin polym. catalysts)

IT 7550-45-0, Titanium tetrachloride, reactions 7632-51-1, Vanadium tetrachloride 7646-79-9, Cobalt dichloride, reactions 10026-11-6, Zirconium tetrachloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. of transition metal olefin polym. catalysts)

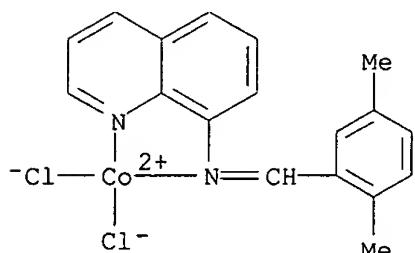
IT 231298-34-3P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);

USES (Uses)

(prepn. of transition metal olefin polym.
catalysts)

RN 231298-34-3 HCA

CN Cobalt, dichloro[N-[(2,5-dimethylphenyl)methylene]-8-quinolinamine-
.kappa.N1,.kappa.N8]- (9CI) (CA INDEX NAME)



L43 ANSWER 14 OF 16 HCA COPYRIGHT 2003 ACS

130:223627 Ni(II) and Pd(II) complexes of camphor-derived diazadiene ligands:
steric bulk tuning and ethylene polymerization.

Schleis, Thomas; Heinemann, Johannes; Spaniol, Thomas P.; Mulhaupt, Rolf;
Okuda, Jun (Inst. Anorg. Chem. und Analytische Chemie, Johannes
Gutenberg-Univ., Mainz, D-55099, Germany). Inorganic Chemistry
Communications, 1(11), 431-434 (English) 1998. CODEN: ICCOPP. ISSN:
1387-7003. Publisher: Elsevier Science S.A..

AB Nickel(II) and palladium(II) centers from NiBr₂(DME) and PdCl₂(COD) were
coordinated to chiral 1,4-diazadiene camphor ligands. The ligands are
camphor derivs. and the imine nitrogens are attached to independently
varied 2- and 2,6-substituted aryl groups. Upon activation with
methylaluminoxane (MAO), the dibromo nickel complexes polymerize
ethylene and 1-hexene. The polymn. parameters are
dependent on the steric features of aryl substituents on imine nitrogens.

CC 35-3 (Chemistry of Synthetic High Polymers)

ST Section cross-reference(s): 30, 67, 75, 78

IT nickel camphor diazadiene complex polymn catalyst ethylene;
palladium complex camphor diazadiene hexene polymn catalyst

IT Aluminoxanes

RL: CAT (Catalyst use); USES (Uses)
(Me; prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine
complexes and use in ethylene and hexene polymn.)

IT Polymer chains

(branching, 1-hexene; prepn. of stereo-directing Ni(II) and Pd(II)
camphor-diazine complexes and use in ethylene and hexene polymn
.)

IT Polymerization catalysts

(coordination; prepn. of stereo-directing Ni(II) and Pd(II)
camphor-diazine complexes and use in ethylene and hexene polymn
.)

IT Crystal structure

Molecular structure

(of Pd(II) camphor-diazadiene complex for use in ethylene and hexene
polymn. and camphor-diazadiene ligand)

IT Polymerization catalysts

(stereospecific; prepn. of stereo-directing Ni(II) and Pd(II)
camphor-diazine complexes and use in ethylene and hexene polymn
.)

IT 220935-82-0P

RL: SPN (Synthetic preparation); PREP (Preparation)

(crystal structure; prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes and use in ethylene and hexene polymn.)

IT 220935-61-5P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(optically active ligand, crystal structure; prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes and use in ethylene and hexene polymn.)

IT 220935-59-1P 220935-60-4P 220935-62-6P 220935-63-7P 220935-64-8P
220935-65-9P 220935-66-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(optically active ligand; prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes and use in ethylene and hexene polymn.)

IT 220935-70-6P 220935-73-9P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes and use in ethylene and hexene polymn.)

IT 9002-88-4P 25067-06-5P, Poly(1-hexene)
RL: PNU (Preparation, unclassified); PREP (Preparation)
(prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes and use in ethylene and hexene polymn.)

IT 62-53-3, Aniline, reactions 75-31-0, Isopropylamine, reactions
87-62-7, 2,6-Dimethylaniline 95-53-4, o-Methylaniline, reactions
643-28-7, o-Isopropylaniline 2999-74-8, Dimethylmagnesium 10334-26-6
12107-56-1, Dichloro(1,5-cyclooctadiene)palladium 15681-48-8, Lithium
dimethylcuprate(1-) 24544-04-5, 2,6-Diisopropylaniline 28923-39-9,
Dibromo(1,2-dimethoxyethane)nickel
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes and use in ethylene and hexene polymn.)

IT 220935-74-0P 220935-75-1P 220935-78-4P 220935-79-5P
220935-80-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes and use in ethylene and hexene polymn.)

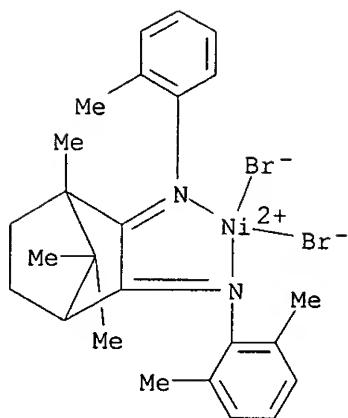
IT 220935-67-1P 220935-68-2P 220935-69-3P
220935-71-7P 220935-72-8P 220935-81-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes and use in ethylene and hexene polymn.)

IT 220935-76-2P 220935-77-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(rotational isomers; prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes and use in ethylene and hexene polymn.)

IT 220935-70-6P 220935-73-9P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes and use in ethylene and hexene polymn.)

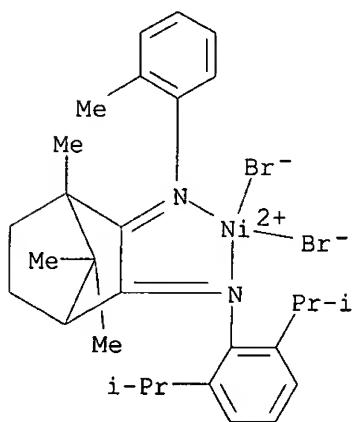
RN 220935-70-6 HCA

CN Nickel, dibromo[2,6-dimethyl-N-[(1S,4R)-4,7,7-trimethyl-3-[(2-methylphenyl)imino-.kappa.N]bicyclo[2.2.1]hept-2-ylidene]benzenamine-.kappa.N]-, (SP-4-3)- (9CI) (CA INDEX NAME)



RN 220935-73-9 HCA

CN Nickel, [2,6-bis(1-methylethyl)-N-[(1S,4R)-4,7,7-trimethyl-3-[(2-methylphenyl)imino]-.kappa.N]bicyclo[2.2.1]hept-2-ylidene]benzenamine-.kappa.N]dibromo-, (SP-4-3)- (9CI) (CA INDEX NAME)



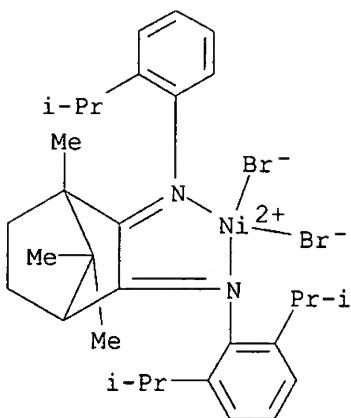
IT 220935-74-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes and use in ethylene and hexene polymn.)

RN 220935-74-0 HCA

CN Nickel, [2,6-bis(1-methylethyl)-N-[(1S,4R)-4,7,7-trimethyl-3-[(2-(1-methylethyl)phenyl)imino]-.kappa.N]bicyclo[2.2.1]hept-2-ylidene]benzenamine-.kappa.N]dibromo-, (SP-4-3)- (9CI) (CA INDEX NAME)

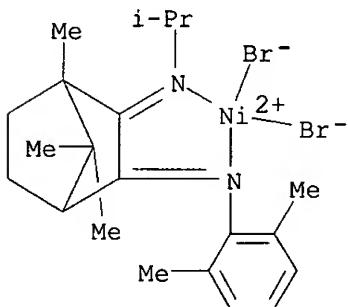


IT 220935-67-1P 220935-69-3P 220935-71-7P
220935-72-8P 220935-81-9P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of stereo-directing Ni(II) and Pd(II) camphor-diazine complexes
and use in ethylene and hexene **polymn.**)

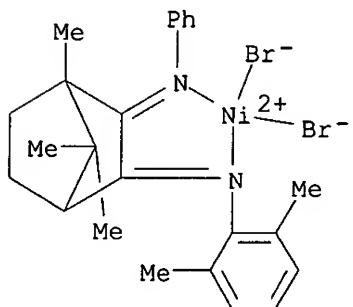
RN 220935-67-1 HCA

CN Nickel, dibromo[2,6-dimethyl-N-[(1S,4R)-4,7,7-trimethyl-3-[(1-methylethyl)imino-.kappa.N]bicyclo[2.2.1]hept-2-ylidene]benzenamine-.kappa.N]-, (SP-4-3)- (9CI) (CA INDEX NAME)



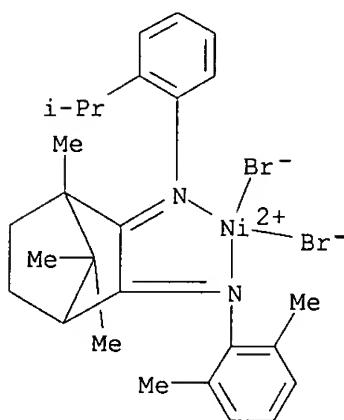
RN 220935-69-3 HCA

CN Nickel, dibromo[2,6-dimethyl-N-[(1S,4R)-4,7,7-trimethyl-3-(phenylimino-
.kappa.N)bicyclo[2.2.1]hept-2-ylidene]benzenamine-.kappa.N]-, (SP-4-3)-
(9CI) (CA INDEX NAME)



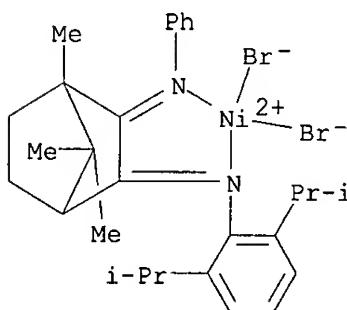
RN 220935-71-7 HCA

CN Nickel, dibromo[2,6-dimethyl-N-[(1S,4R)-4,7,7-trimethyl-3-[[2-(1-methylethyl)phenyl]imino-.kappa.N]bicyclo[2.2.1]hept-2-ylidene]benzenamine-.kappa.N]-, (SP-4-3)- (9CI) (CA INDEX NAME)



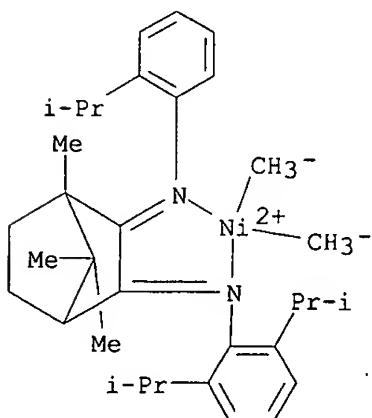
RN 220935-72-8 HCA

CN Nickel, [2,6-bis(1-methylethyl)-N-[(1S,4R)-4,7,7-trimethyl-3-(phenylimino-.kappa.N)bicyclo[2.2.1]hept-2-ylidene]benzenamine-.kappa.N]dibromo-, (SP-4-3)- (9CI) (CA INDEX NAME)



RN 220935-81-9 HCA

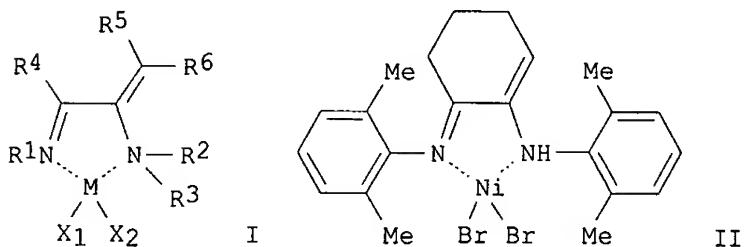
CN Nickel, [2,6-bis(1-methylethyl)-N-[(1S,4R)-4,7,7-trimethyl-3-[[2-(1-methylethyl)phenyl]imino-.kappa.N]bicyclo[2.2.1]hept-2-ylidene]benzenamine-.kappa.N]dimethyl-, (SP-4-3)- (9CI) (CA INDEX NAME)



L43 ANSWER 15 OF 16 HCA COPYRIGHT 2003 ACS

129:122982 Transition metal complexes with diimine ligands as **olefin polymerization** components, **olefin polymerization** catalysts containing them, and **polymerization of olefins** using the catalysts. Ban, Kiyotaka; Nitabara, Masatoshi; Fukucka, Daisuke (Mitsui Petrochemical Industries, Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 10182679 A2 19980707 Heisei, 18 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1996-349021 19961226.

GI



AB The transition metal complexes used as **olefin polymn.** catalyst components comprise I [M = Group 4-6 and 8-10 transition metal; R1-6 = H, hydrocarbyl, C1-20 halo-, Si-, O-, S-, N-, or P-contg. hydrocarbyl; .gtoreq.2 of R1-6 may form a ring; X1, X2 = H, halo, C1-20 (halo-, O-, or S-contg.) hydrocarbyl]. The **olefin polymn.** catalysts contain (A) I and (B) org. Al compds., org. aluminoxy compds., and/or ion-pair-forming compds. by reaction with I. Olefins are (co)**polymd.** in the presence of the above catalysts. Thus, ethylene was **polymd.** at ambient temp. for 1 h in 10 mL PhMe contg. 3 mmol (based on Al) Me aluminoxane and 0.01 mmol II (obtained from 1,2-cyclohexanedione, 2,6-dimethylaniline, and NiBr2) to give rubber-like polymer with **polymn.** activity 136 kg/mol-Ni-h, Mw 44,000, Mn 17,000, Mw/Mn 2.63, and Tg -70.8.degree..

IC ICM C07F015-04
ICS C08F004-642; C08F004-70; C08F010-00

CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 29

ST transition metal diimine complex **polymn** catalyst; **olefin polymn** catalyst metal diimine complex; **ethylene polymn** nickel complex aluminoxane catalyst

IT Aluminoxanes
RL: CAT (Catalyst use); USES (Uses)
(Me; **polymn.** of **olefins** by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT Transition metal complexes
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(diimine; **polymn.** of **olefins** by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT Imines
Imines
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(diimines, transition metal complexes; **polymn.** of **olefins** by using transition metal diimine complex and Al-contg.

compds. as catalysts)

IT **Polymerization catalysts**
(polymn. of olefins by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT **Polyolefins**
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(polymn. of olefins by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT 210295-13-9P 210295-15-1P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(catalyst from; polymn. of olefins by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT 87-62-7, 2,6-Dimethylaniline 765-87-7, 1,2-Cyclohexanedione
24544-04-5, 2,6-Diisopropylaniline
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalyst from; polymn. of olefins by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT 97-93-8, Triethylaluminum, uses 100-99-2, Triisobutylaluminum, uses 563-43-9, Ethylaluminum dichloride, uses 917-65-7, Methylaluminum dichloride 1184-58-3, Dimethylaluminum chloride 56252-55-2, Methylaluminum bis(2,6-di-tert-butyl-4-methylphenoxyde)
RL: CAT (Catalyst use); USES (Uses)
(polymn. of olefins by using transition metal diimine complex and Al-contg. compds. as catalysts)

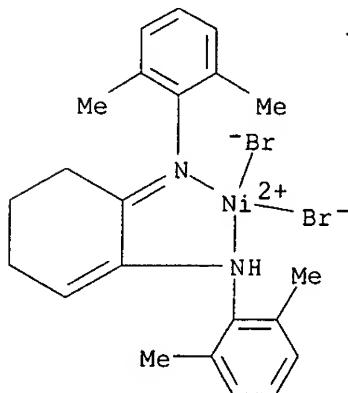
IT 210295-10-6P 210295-11-7P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(polymn. of olefins by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT 9002-88-4P
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(polymn. of olefins by using transition metal diimine complex and Al-contg. compds. as catalysts)

IT 210295-10-6P 210295-11-7P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(polymn. of olefins by using transition metal diimine complex and Al-contg. compds. as catalysts)

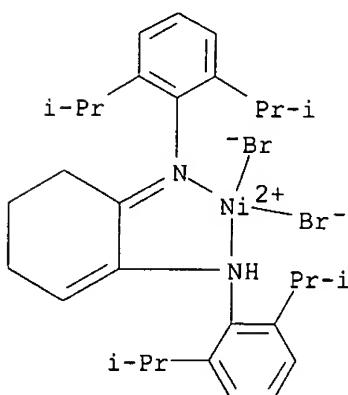
RN 210295-10-6 HCA

CN Nickel, dibromo[N-[2-[(2,6-dimethylphenyl)amino-.kappa.N]-2-cyclohexen-1-ylidene]-2,6-dimethylbenzenamine-.kappa.N]- (9CI) (CA INDEX NAME)



RN 210295-11-7 HCA

CN Nickel, [N-[2-[[2,6-bis(1-methylethyl)phenyl]amino-.kappa.N]-2-cyclohexen-1-ylidene]-2,6-bis(1-methylethyl)benzenamine-.kappa.N]dibromo- (9CI) (CA INDEX NAME)



L43 ANSWER 16 OF 16 HCA COPYRIGHT 2003 ACS

127:176850 Transition metal complex catalyst for **olefin polymerization** with high activity. Igai, Shigeru; Imaoka, Koji; Murakami, Masato; Kai, Yoshiyuki (Ube Industries, Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09194525 A2 19970729 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-7535 19960119.

AB Title catalyst comprises LMX2 or Q(Pz)2MX2 [M = Group VIII transition metal; X = H, halo, C1-20 hydrocarbyl, C1-20 hydrocarbyloxy, C1-20 hydrocarbylamino, C1-20 hydrocarbon-contg. silyl; L = silyl-, hydrocarbyl-, hydrocarbyloxy-, or hydrocarbylamino-substituted 2,2-bipyridine, 2,2-biquinoline, 1,10-phenanthroline, or 2,2-bipyrimidine; Pz = (substituted) pyrazoyl; Q = group linking 2 pyrazoyls] and a promoter selected from Group I-III organometallic compds., org. Al oxy compds., and ionic compds. which are reacted with the transition metal compds. to form cationic compds. Thus, ethylene (at 1000 mL/min) was **polymerd.** in a PhMe soln. contg. 10 mmol Me alumoxane and 10 .mu.mol dibromo(2,9-dimethyl-1,10-phenanthroline)nickel at 20.degree. for 1 h to give 6.85 kg **polyethylene**/mmol-Ni-h-atm showing wt.-av. mol. wt. 53,000 and wt.-av. mol. wt./no.-av. mol. wt. 2.8.

IC ICM C08F004-70
ICS C08F010-00

CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 39, 67

ST **olefin polymn** transition metal catalyst;
organometallic compd catalyst promoter **polymn**; aluminoxane catalyst promoter **polymn olefin**; ionic compd catalyst promoter **polymn**; phenanthroline nickel complex catalyst **polymn**

IT Aluminoxanes
RL: CAT (Catalyst use); USES (Uses)
(Me, catalyst promoters; transition metal complex catalyst for **olefin polymn.** with high activity)

IT **Polymerization catalysts**
(transition metal complex catalyst for **olefin polymn**
. with high activity)

IT Group VIII element complexes
RL: CAT (Catalyst use); USES (Uses)
(transition metal complex catalyst for **olefin polymn**
. with high activity)

IT Ethylene-propylene rubber
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (transition metal complex catalyst for olefin polymn
 . with high activity)

IT Polyolefins
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (transition metal complex catalyst for olefin polymn
 . with high activity)

IT 100-99-2, Triisobutylaluminum, uses
 RL: CAT (Catalyst use); USES (Uses)
 (catalyst promoters; transition metal complex catalyst for
 olefin polymn. with high activity)

IT 9010-79-1P
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (ethylene-propylene rubber, transition metal complex catalyst for
 olefin polymn. with high activity)

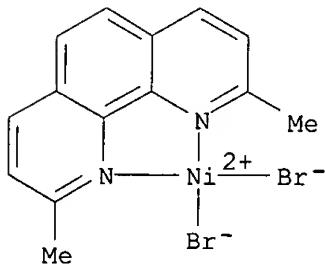
IT 112187-53-8 118612-00-3 193813-22-8 193813-23-9
 RL: CAT (Catalyst use); USES (Uses)
 (transition metal complex catalyst for olefin polymn
 . with high activity)

IT 9002-88-4P, Polyethylene
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (transition metal complex catalyst for olefin polymn
 . with high activity)

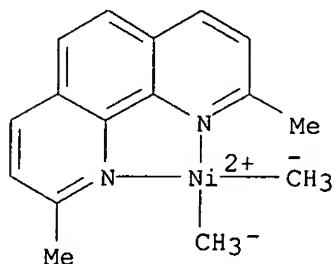
IT 193813-22-8 193813-23-9
 RL: CAT (Catalyst use); USES (Uses)
 (transition metal complex catalyst for olefin polymn
 . with high activity)

RN 193813-22-8 HCA

CN Nickel, dibromo(2,9-dimethyl-1,10-phenanthroline-.kappa.N1,.kappa.N10)-
 (9CI) (CA INDEX NAME)



RN 193813-23-9 HCA
 CN Nickel, (2,9-dimethyl-1,10-phenanthroline-.kappa.N1,.kappa.N10)dimethyl-
 (9CI) (CA INDEX NAME)



This was the first substructure search on the fluorenyl bonded to nitrogen.

=> d L21 1-6 cbib abs hitstr

L21 ANSWER 1 OF 6 HCA COPYRIGHT 2003 ACS

117:140458 Photographic material containing infrared absorbing dye. Sakuma, Haruhiko (Konica Co., Japan). Jpn. Kokai Tokkyo Koho JP 03228046 A2 19911009 Heisei, 27 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-139023 19900529. PRIORITY: JP 1989-237670 19890913.

AB The title photog. material having a photosensitive material on .gtoreq.1 sides of its support contains an IR-absorbing dye and a water-sol. polymer contg. the repeating unit [CR2YCR1(LpJqQ)] [R1, R2 = H, alkyl, halo, -CH2CO2M1; L = CONH, NHCO, CO2, OCO, CO, SO2, NHSO2, SO2NH or O; J = alkylene arylene; Q = 1,3-imidazol-1-yl, pyrrolidin-1-yl, 2-oxopyrrolidin-1-yl, piperidin-1-yl, N+R4R5(R6)X-, NR7R8, OM1, NH2, SO3M1, OP(O)(OM1)(OM2), COR9, H or R3; M1, M2 = H, cationic group; R9 = C1-4 alkyl; R3-8 = H, C1-20 alkyl, alkenyl, Ph, aralkyl; X = anion; p, q = 0, 1; Y = H, LpJqQ group]. The absorbance of IR is increased so that the presence (or absence) of a photog. film in the automatic film processing unit can be detected with high reliability when using an IR transmission-type detector unit.

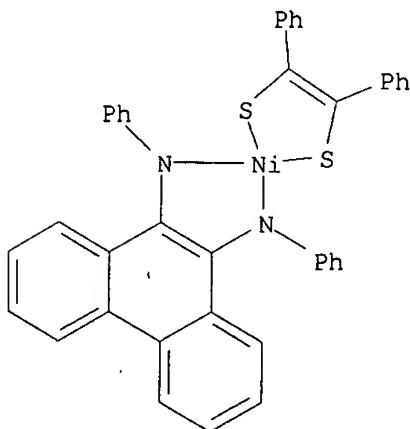
IT 138071-75-7

RL: USES (Uses)

(IR-absorbing dye, photog. material contg.)

RN 138071-75-7 HCA

CN Nickel, [1,2-diphenyl-1,2-ethenedithiolato(2-)-S,S'] [N,N'-diphenyl-9,10-phenanthrenediaminato(2-)-N,N']-, (SP-4-2)- (9CI) (CA INDEX NAME)



L21 ANSWER 2 OF 6 HCA COPYRIGHT 2003 ACS

116:224557 Silver halide photographic material containing IR-absorbing dye. Hasegawa, Takuji (Konica Co., Japan). Jpn. Kokai Tokkyo Koho JP 03155538 A2 19910703 Heisei, 15 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-27850 19900207. PRIORITY: JP 1989-212682 19890817.

AB In the title material having on at least 1 side of a support at least 1 emulsion layer contg. photosensitive Ag halide grains obtained by the growth of grains contg. shells subjected to redn. treatment in the inner parts of the grains, at least 1 of the photog. constituent layers contains an IR-absorbing dye.

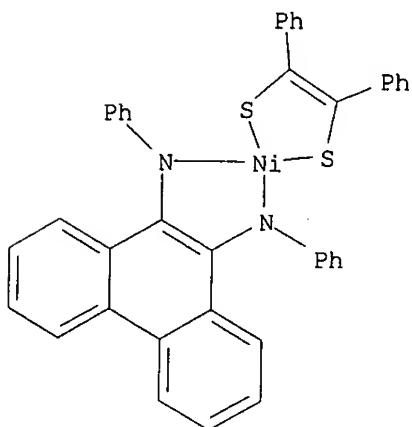
IT 138071-75-7

RL: USES (Uses)

(IR-absorbing dye, for silver halide photog. materials)

RN 138071-75-7 HCA

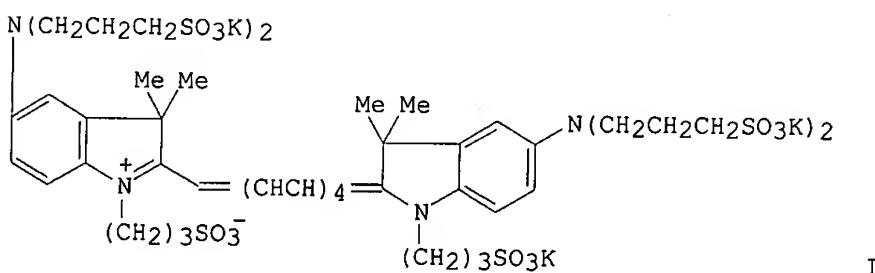
CN Nickel, [1,2-diphenyl-1,2-ethenedithiolato(2--S,S')][N,N'-diphenyl-9,10-phenanthrenediaminato(2--N,N')]-, (SP-4-2)- (9CI) (CA INDEX NAME)



L21 ANSWER 3 OF 6 HCA COPYRIGHT 2003 ACS

116:31236 Photographic material with tabular silver halide grains and infrared-absorbing dye. Sakuma, Haruhiko; Tsuji, Nobuaki (Konica Co., Japan). Jpn. Kokai Tokkyo Koho JP 03039947 A2 19910220 Heisei, 15 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-1785 19900109. PRIORITY: JP 1989-99345 19890418.

GI



AB In a photog. material having .gtoreq.1 Ag halide emulsion layer on .gtoreq.1 side of the support, the emulsion contains tabular grains with diam./thickness ratio .gtoreq.3, and (2) that an IR-absorbing dye is incorporated in .gtoreq.1 component layer(s). The film has good detectability by an IR sensor, and gives clear images without fog by the IR sensor. Thus, dye I was added to Ag(Br, I) tabular grains (av. diam. 1.15 .mu.m, av. thickness 0.10 .mu.m) to give a photog. emulsion.

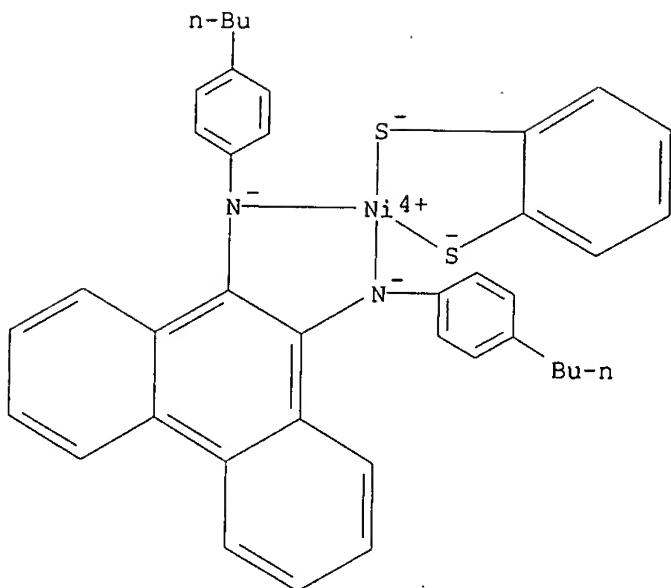
IT 138071-76-8

RL: USES (Uses)

(IR-absorbing dye, backing layer contg., in photog film)

RN 138071-76-8 HCA

CN Nickel, [benzenedithiolato(2--S,S')][N,N'-bis(4-butylphenyl)-9,10-phenanthrenediaminato(2--N,N')]-, (SP-4-2)- (9CI) (CA INDEX NAME)



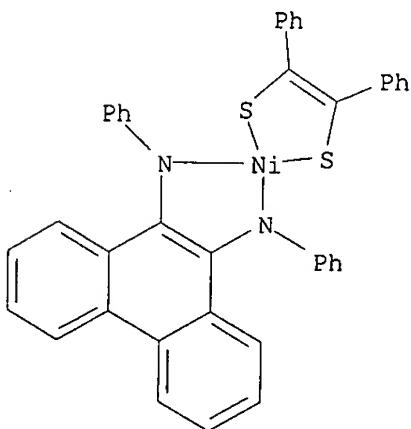
IT 138071-75-7

RL: USES (Uses)

(IR-absorbing dye, photog. emulsion contg.)

RN 138071-75-7 HCA

CN Nickel, [1,2-diphenyl-1,2-ethenedithiolato(2-)S,S'] [N,N'-diphenyl-9,10-phenanthrenediaminato(2-)N,N']-, (SP-4-2)- (9CI) (CA INDEX NAME)



L21 ANSWER 4 OF 6 HCA COPYRIGHT 2003 ACS

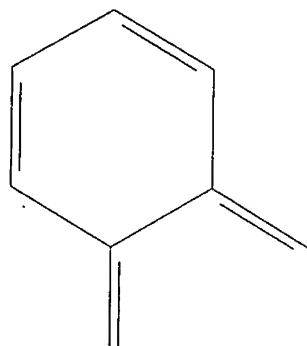
85:194079 Schiff bases derived from phenanthrene-9,10-diamines and o-hydroxy aldehydes. Dhaliwal, Pritam S. (du Pont de Nemours, E. I., and Co., USA). U.S. US 3980640 19760914, 5 pp. Division of U.S. 3,928,328. (English). CODEN: USXXAM. APPLICATION: US 1975-586745 19750613.

GI For diagram(s), see printed CA Issue.

AB Ni complexes (I, R = H, Br, Cl; A quinolinone, dibromobenzene, naphthalene residue), useful as yellow pigments, were prep'd. Thus, a mixt. of phenanthrene-9,10-diamine [53348-04-2] and 2-hydroxy-1-naphthaldehyde [708-06-5] was refluxed in a mixt. of EtOH-BuOH to give the corresponding Schiff base [53348-03-1] which was refluxed with Ni acetate in DMF to give

I (R = H, A = naphthalene residue) [53350-80-4]. The other I
were similarly prepd.
IT 53350-80-4P 53350-81-5P
RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of)
RN 53350-80-4 HCA
CN Nickel, [[1,1'-[9,10-phenanthrenediyl]bis(nitrilomethylidyne)]bis[2-naphthalenolato]](2-)-N,N',O,O']- (9CI) (CA INDEX NAME)

PAGE 1-A

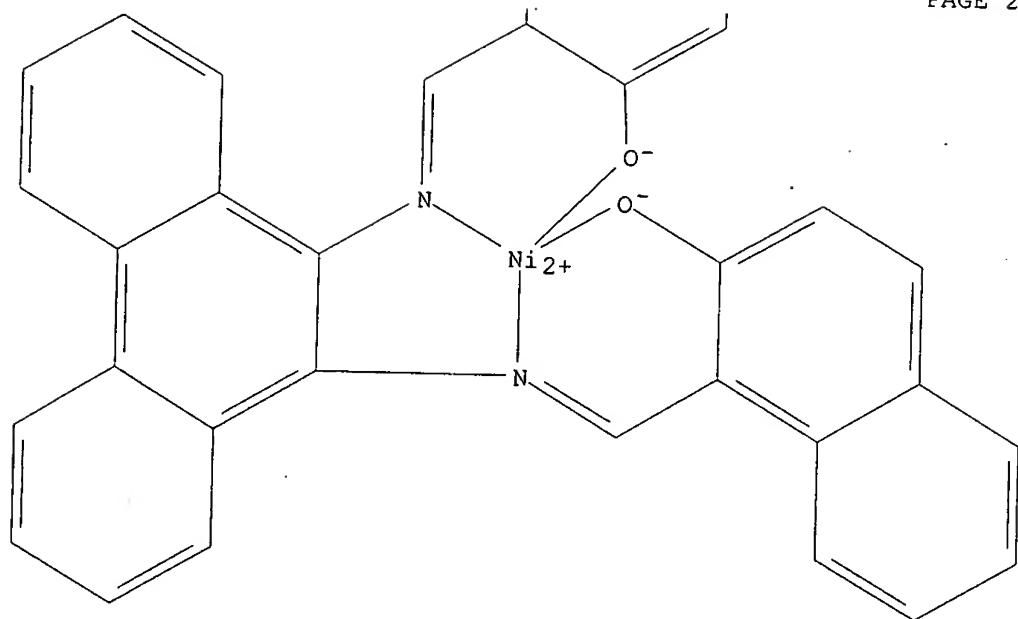


R. Harlan

10/087,025

04/29/2003

PAGE 2-A



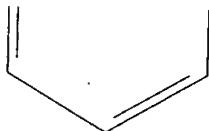
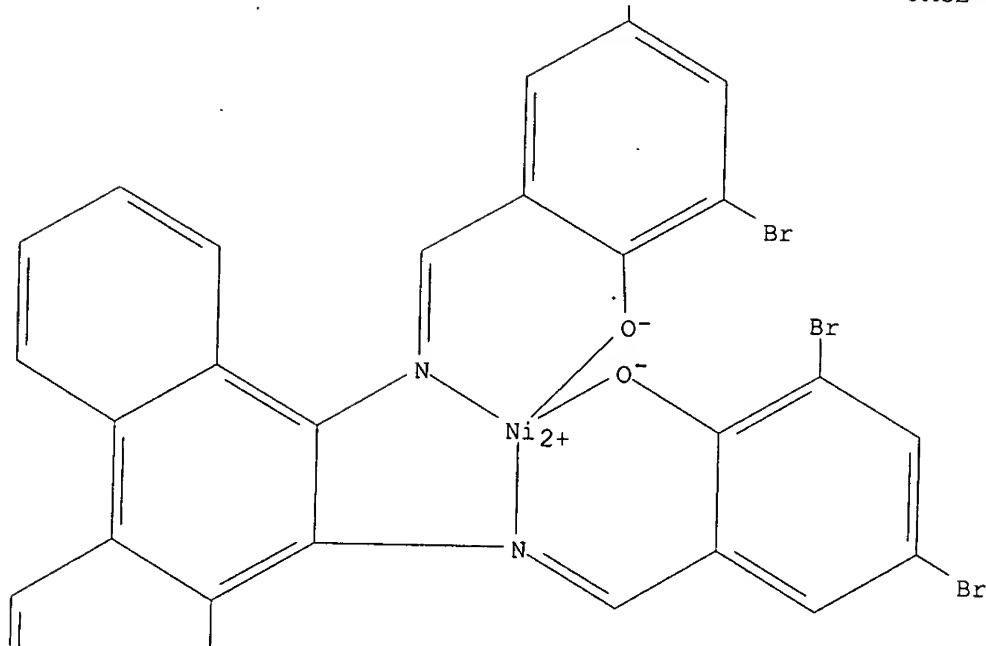
RN 53350-81-5 HCA

CN Nickel, [[2,2'-[9,10-phenanthrenediyl]bis(nitrilomethylidyne)]bis[4,6-dibromophenolato]](2-)-N,N',O,O'- (9CI) (CA INDEX NAME)

PAGE 1-A

Br

PAGE 2-A



PAGE 3-A

L21 ANSWER 5 OF 6 HCA COPYRIGHT 2003 ACS

84:91635 Schiff base and metal bisazomethine metal chelate. Dhaliwal, Pritam S. (du Pont de Nemours, E. I., and Co., USA). U.S. US 3928328 19751223, 5 pp. (English). CODEN: USXXAM. APPLICATION: US 1974-535140 19741220.

GI For diagram(s), see printed CA Issue.

AB Metal chelates (I, R = H, Cl, Br; A = atom needed to complete a naphthalene, dihydrooxoquinoline, or dibromobenzene residue) were prep'd. from the corresponding Schiff bases and used as reddish yellow pigments which are durable to outdoor exposure. Thus, a mixt. of 9,10-diaminophenanthrene [53348-04-2] and 2,4-dihydroxy-3-quinolinicarboxaldehyde [529-89-5] was refluxed in BuOH for 5 hr giving Schiff base II [53348-02-0]. II was treated with Ni acetate tetrahydrate in DMF to give III [58384-91-1]. The other Schiff bases and I were similarly prep'd.

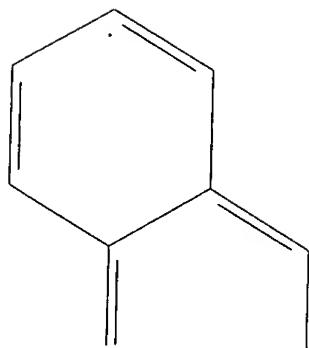
IT 53350-80-4P 53350-81-5P

RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of)

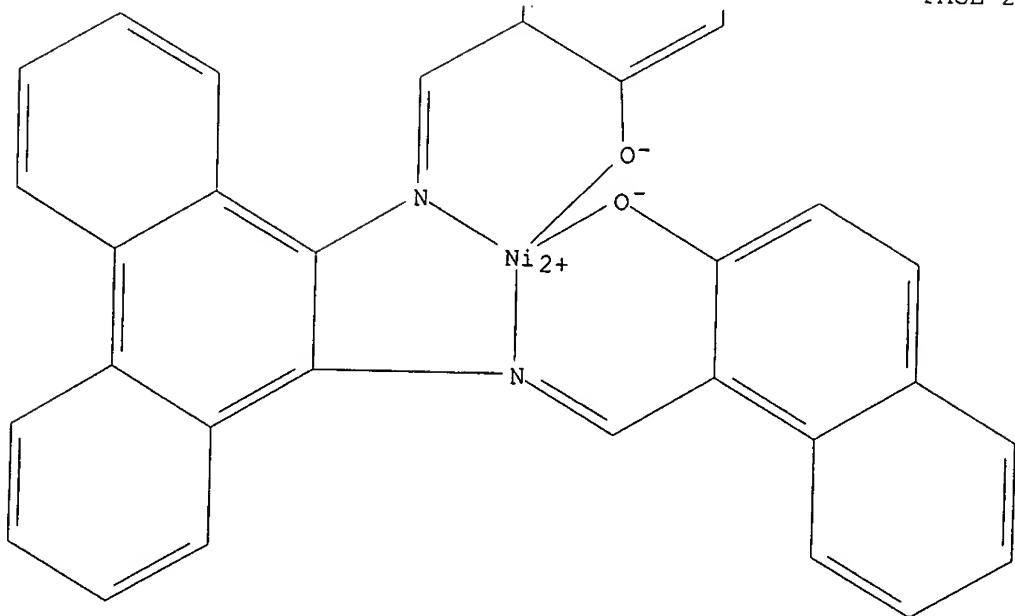
RN 53350-80-4 HCA

CN Nickel, [[1,1'-[9,10-phenanthrenediyl]bis(nitrilomethylidyne)]bis[2-naphthalenolato]](2)-N,N',O,O']- (9CI) (CA INDEX NAME)

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RN 53350-81-5 HCA

CN Nickel, [[2,2'-[9,10-phenanthrenediyl]bis(nitrilomethylidyne)]bis[4,6-dibromophenolato]](2)-N,N',O,O']- (9CI) (CA INDEX NAME)

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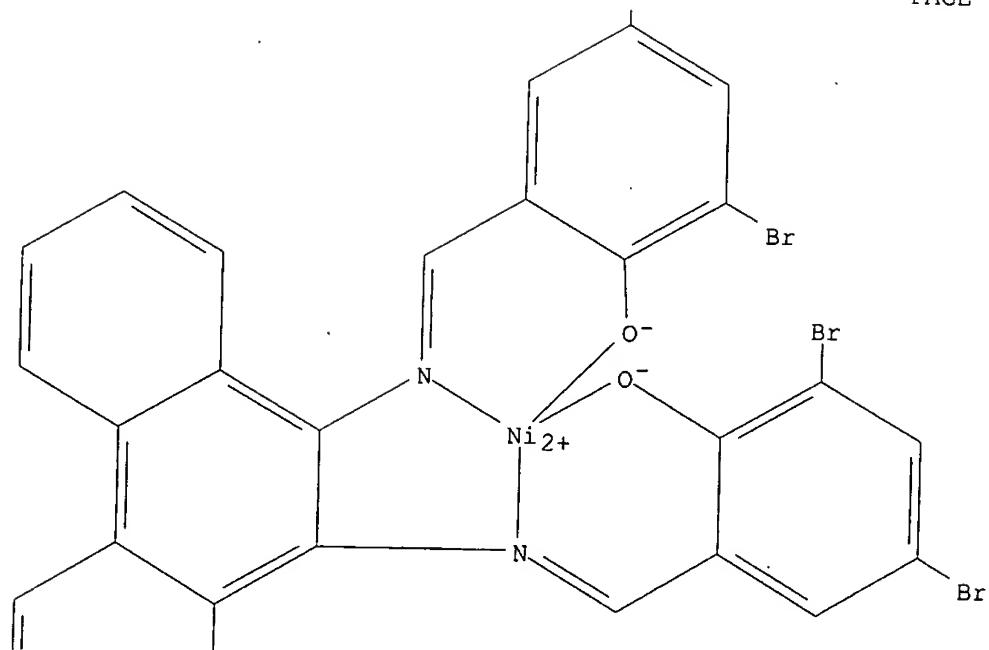
10/087,025

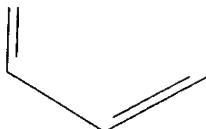
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Br

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82:5366 Nickel chelate pigments. Dhaliwal, Pritam S. (du Pont de Nemours, E. I., and Co.). Ger. Offen. DE 2361099 19740801, 16 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1973-2361099 19731207.

GI For diagram(s), see printed CA Issue.

AB The yellow Ni chelate pigments I (R = H, Cl, or Br; A = benzo, 1,2-naphtho, or 2-oxo-1,2-dihydro-3,4-quino residue) were prep'd. Thus, 9,10-phenanthrenediamine [53348-04-2] and 2,4-dihydroxy-3-formylquinoline [529-89-5] were refluxed 5 hr in BuOH to give 9,10-bis[(2,4-dihydroxy-3-quinolylmethylene)amino]phenanthrene [53348-02-0], which on refluxing with (AcO)2Ni·4H2O 4 hr in DMF gave the reddish yellow dye (I, R = H, A = 2-oxo-1,2-dihydro-3,4-quino residue) [53350-82-6] useful as weatherfast pigment. Similarly prep'd. were 4 other I.

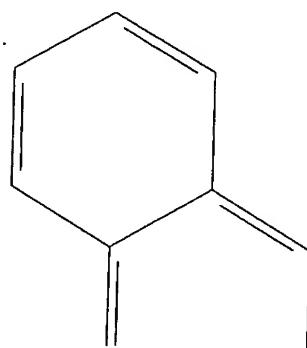
IT 53350-80-4P 53350-81-5P

RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of)

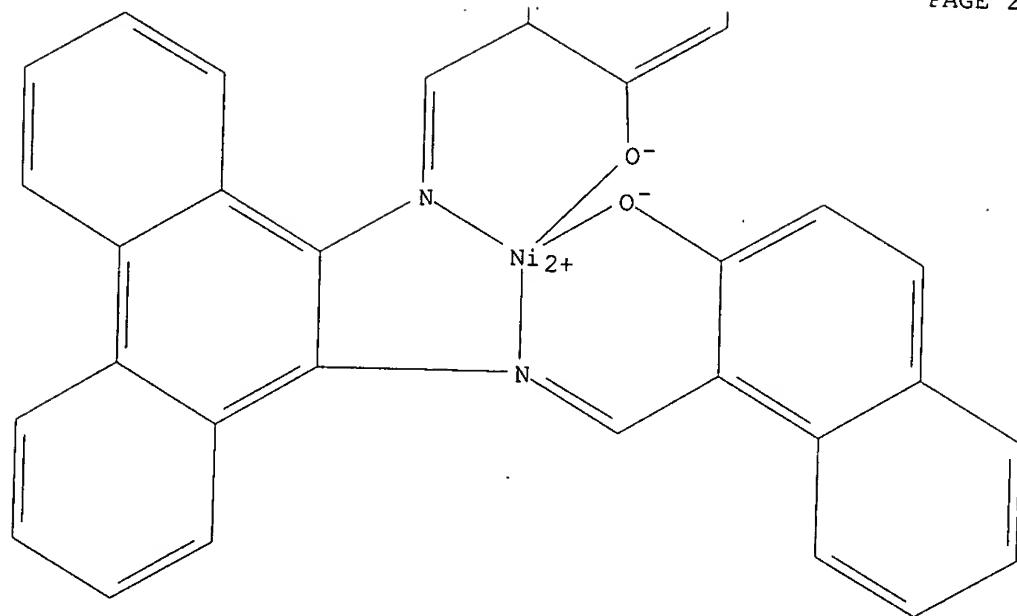
RN 53350-80-4 HCA

CN Nickel, [[1,1'-[9,10-phenanthrenediylbis(nitrilomethylidyne)]bis[2-naphthalenolato]](2--N,N',O,O')- (9CI) (CA INDEX NAME)

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RN 53350-81-5 HCA

CN Nickel, [[2,2'-[9,10-phenanthrenediyl]bis(nitrilomethylidyne)]bis[4,6-dibromophenolato]](2-)~N,N',O,O']- (9CI) (CA INDEX NAME)

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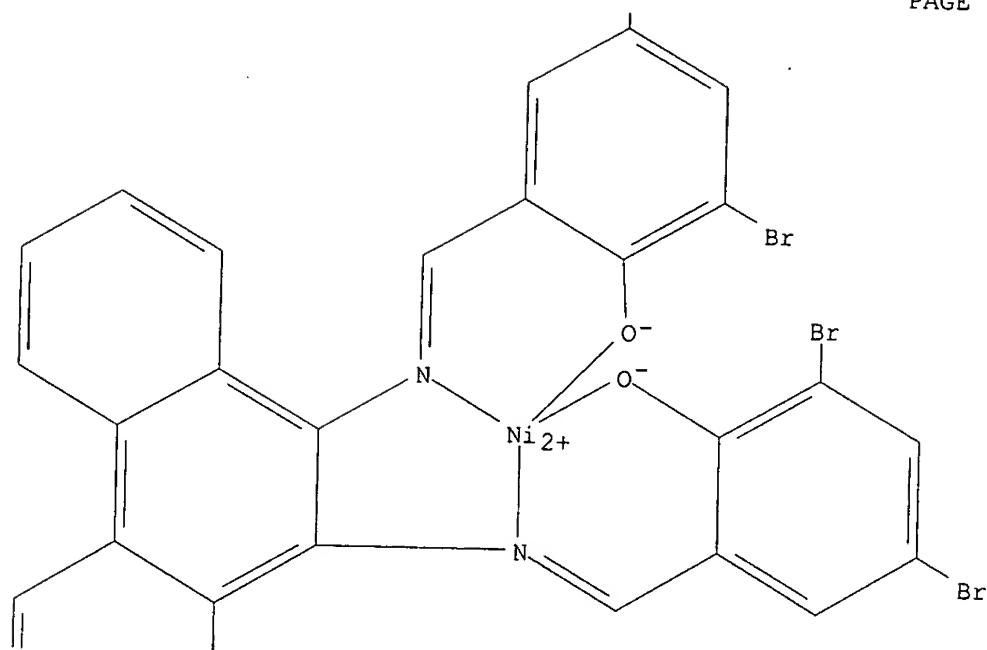
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